

Please enter the following substitute drawings and consider the remarks herein.

IN THE DRAWINGS

Please replace the original drawings as filed with the substitute drawings submitted herein.

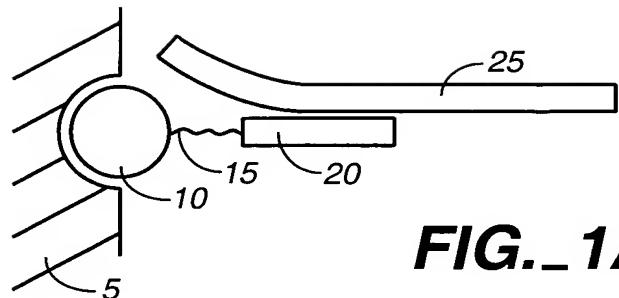


FIG. 1A

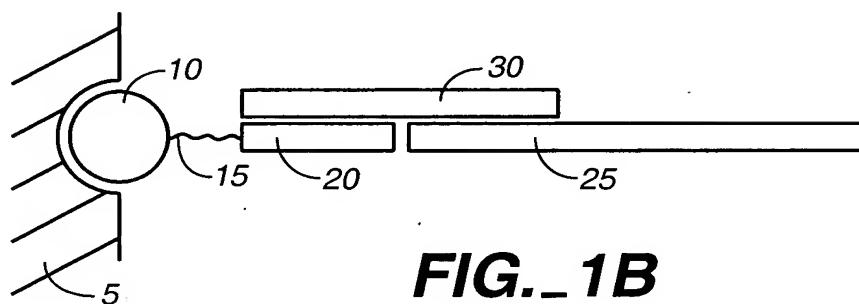


FIG. 1B

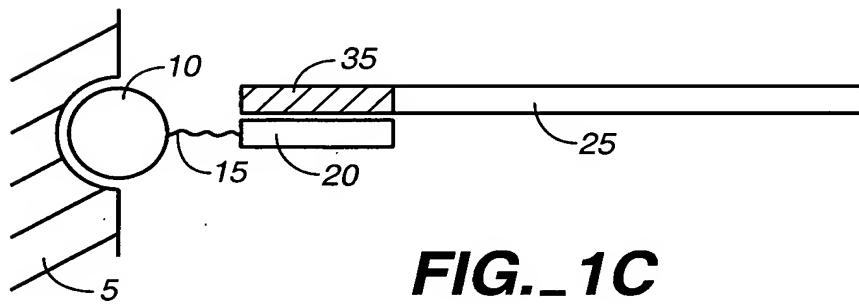
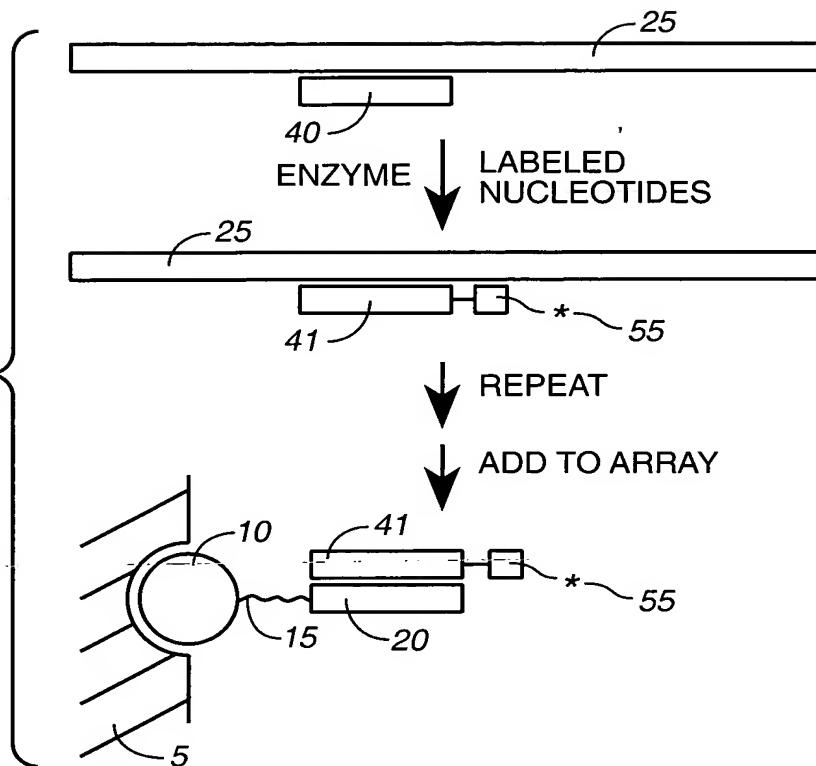
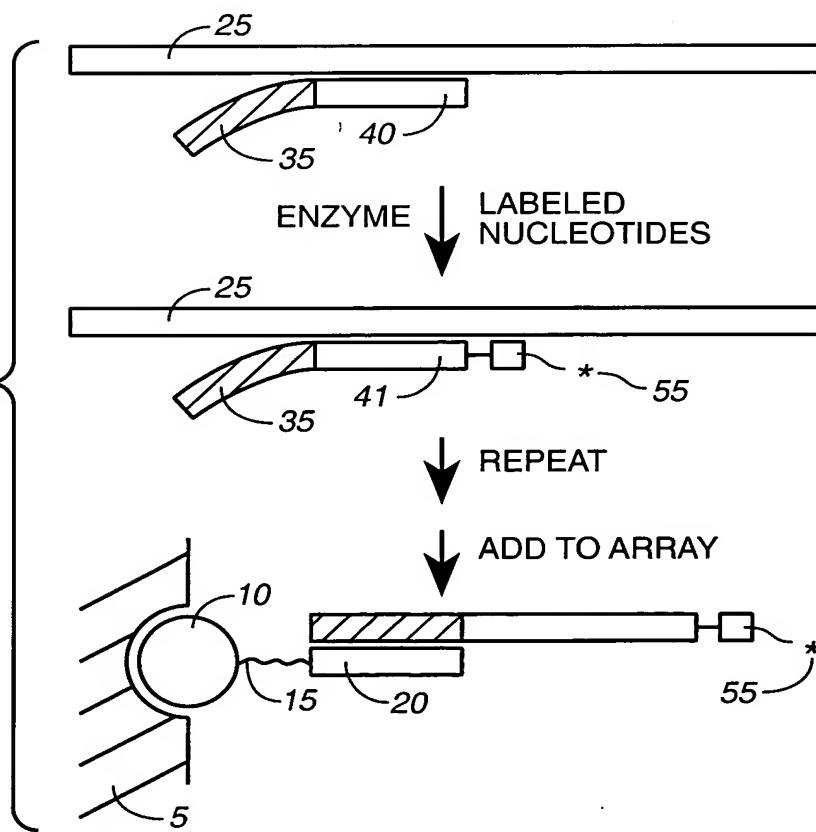
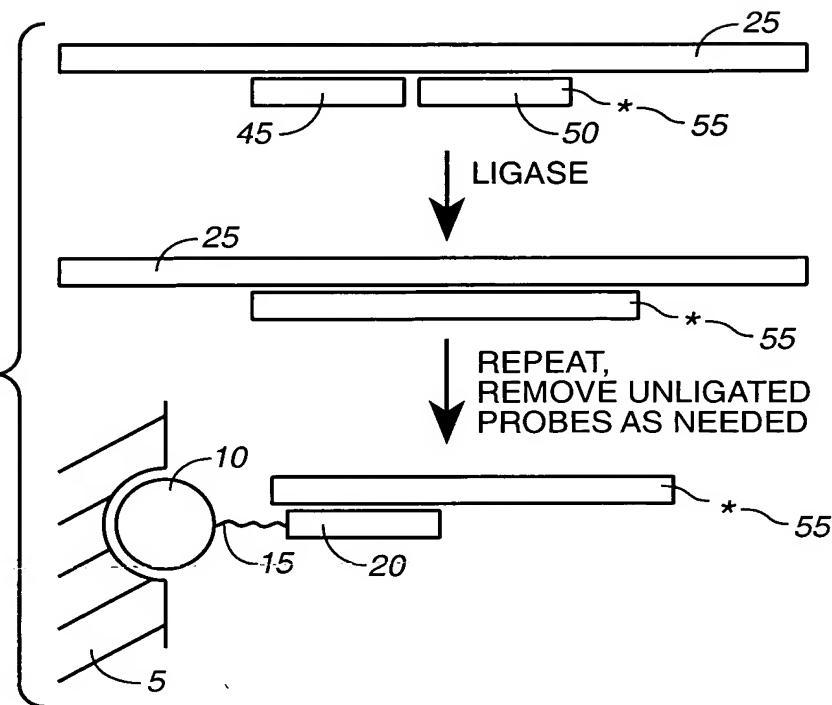
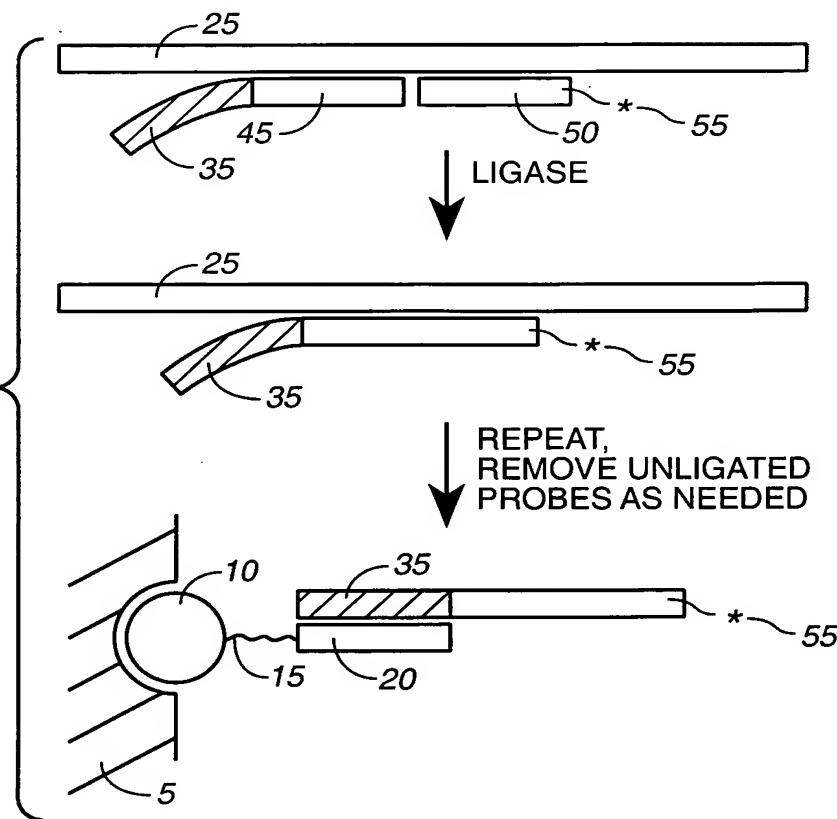
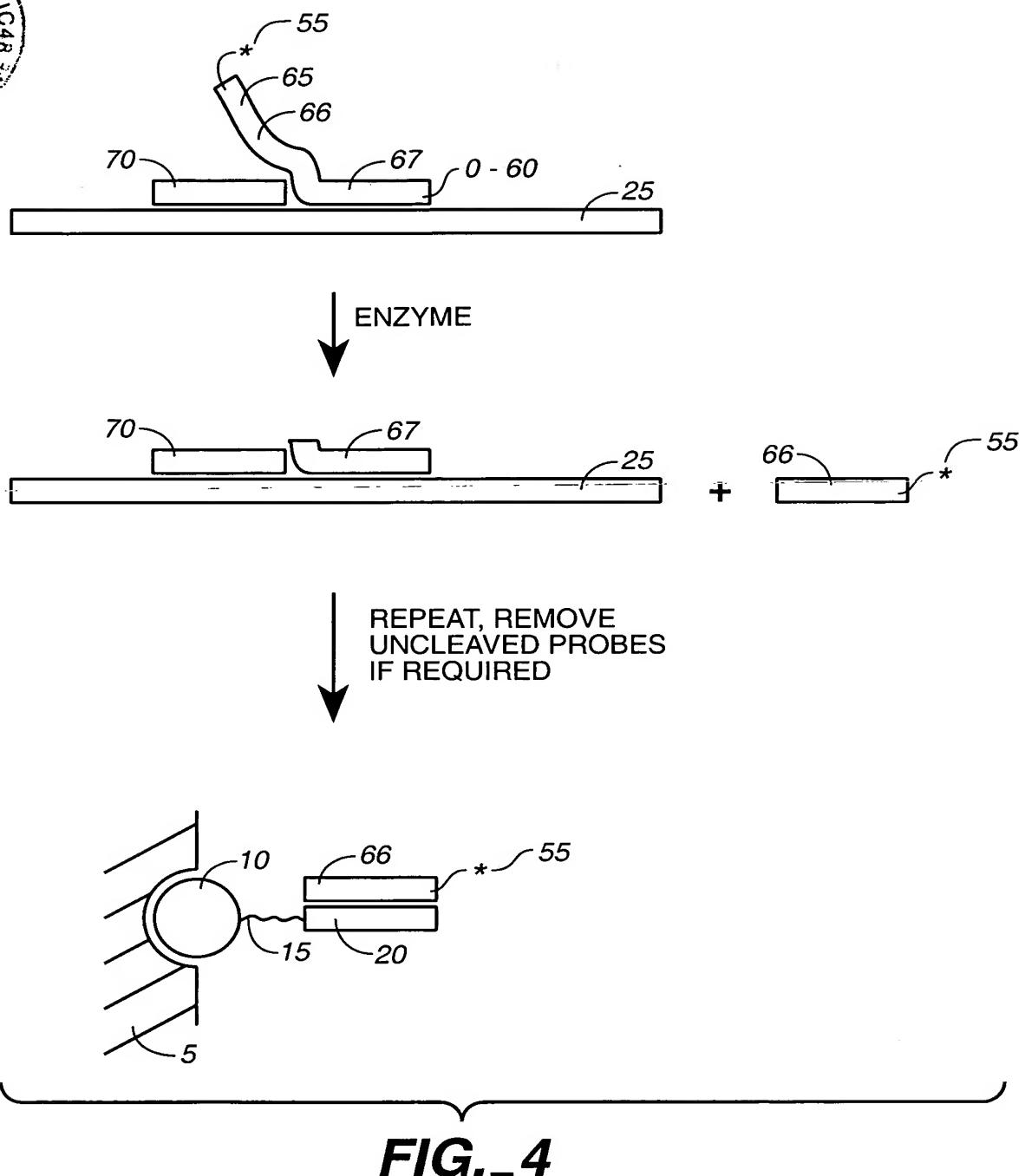
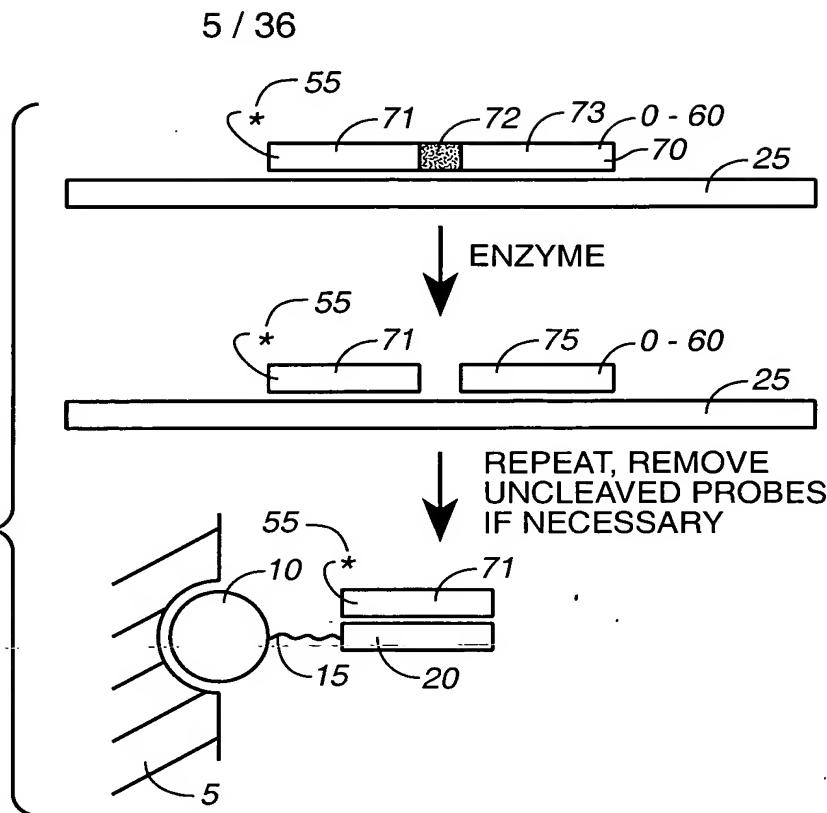
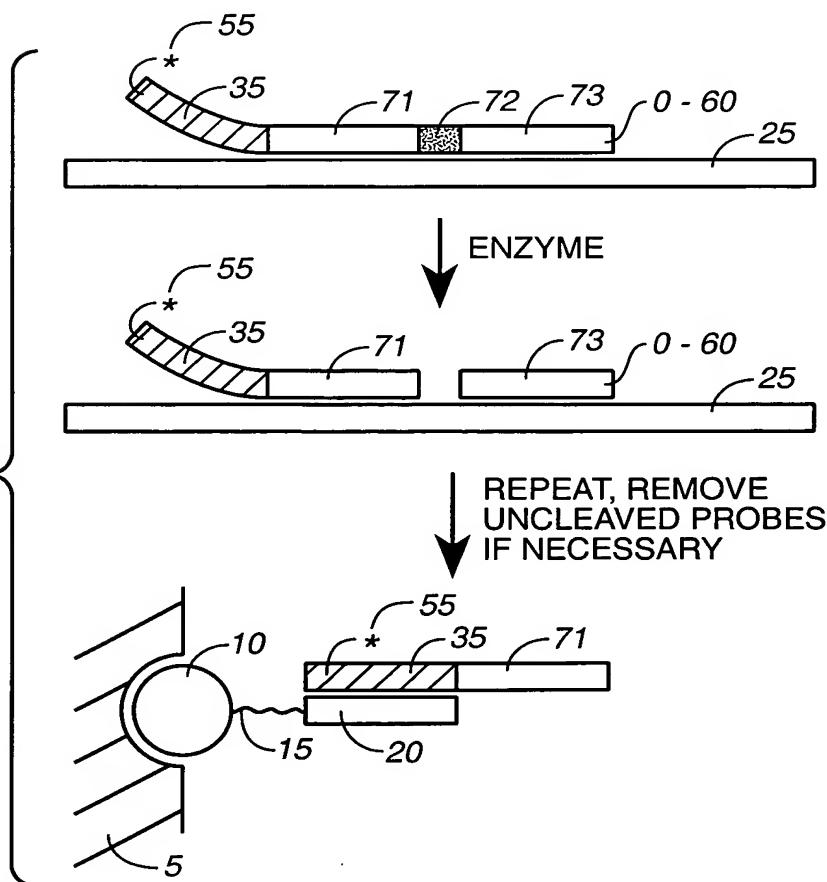


FIG. 1C

**FIG._2A****FIG._2B**

**FIG._3A****FIG._3B**



**FIG._5A****FIG._5B**

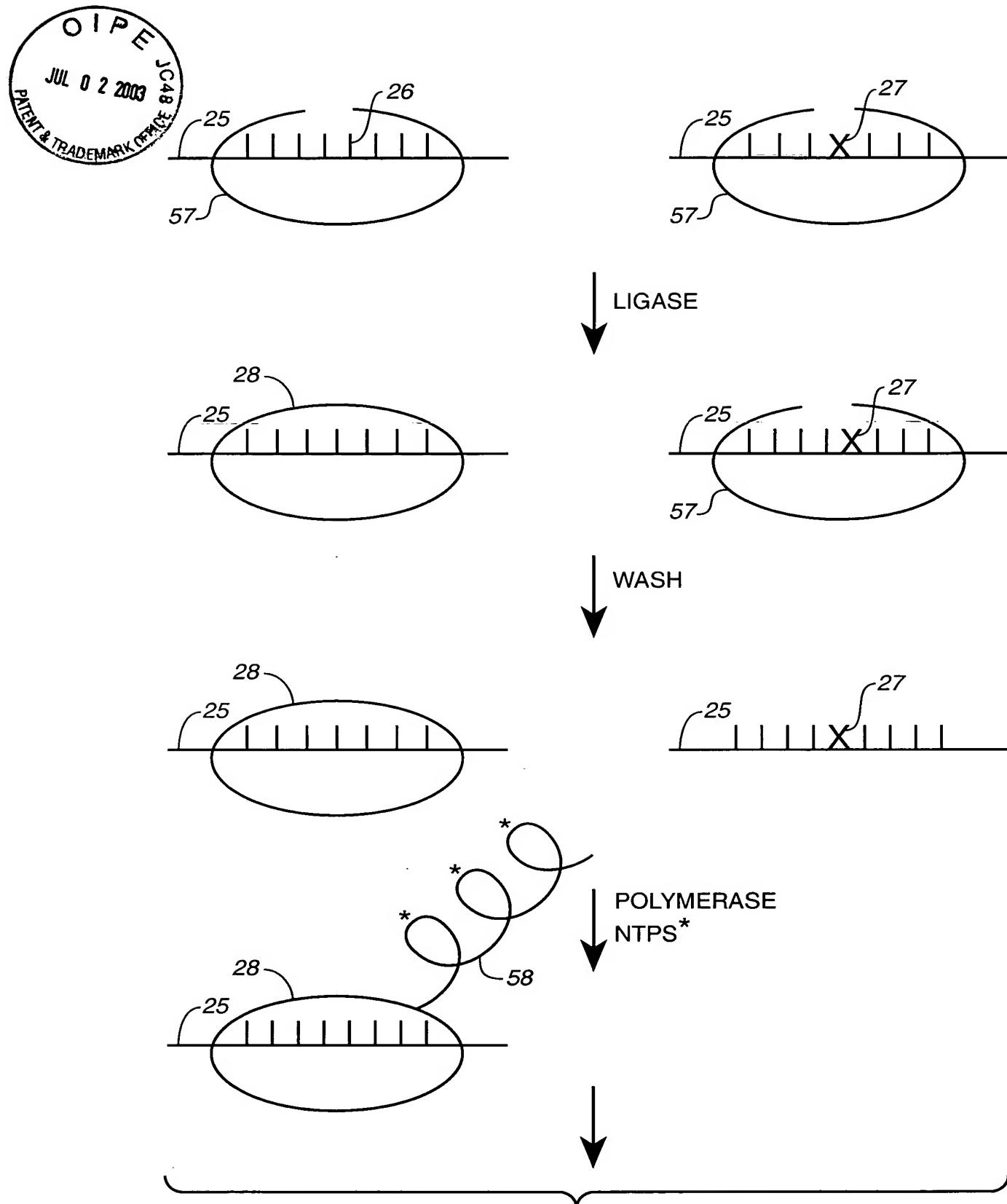
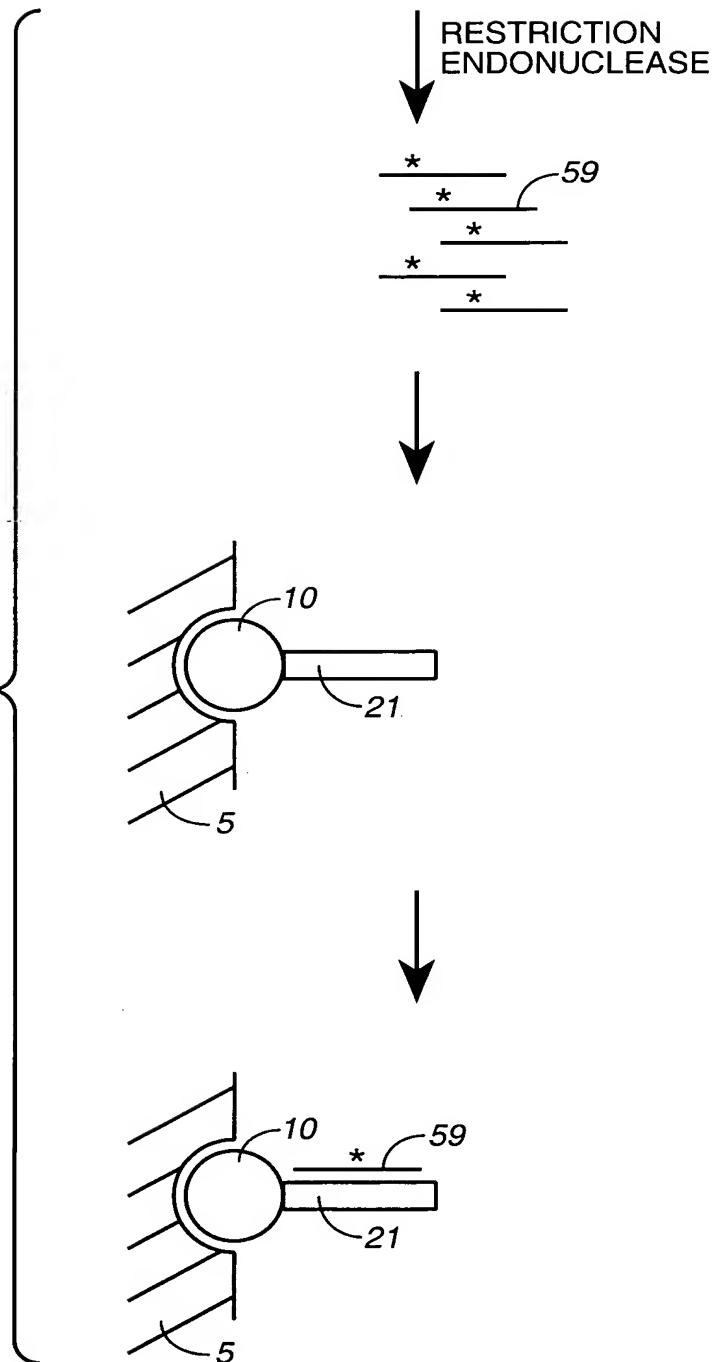


FIG._6A

**FIG._6B**

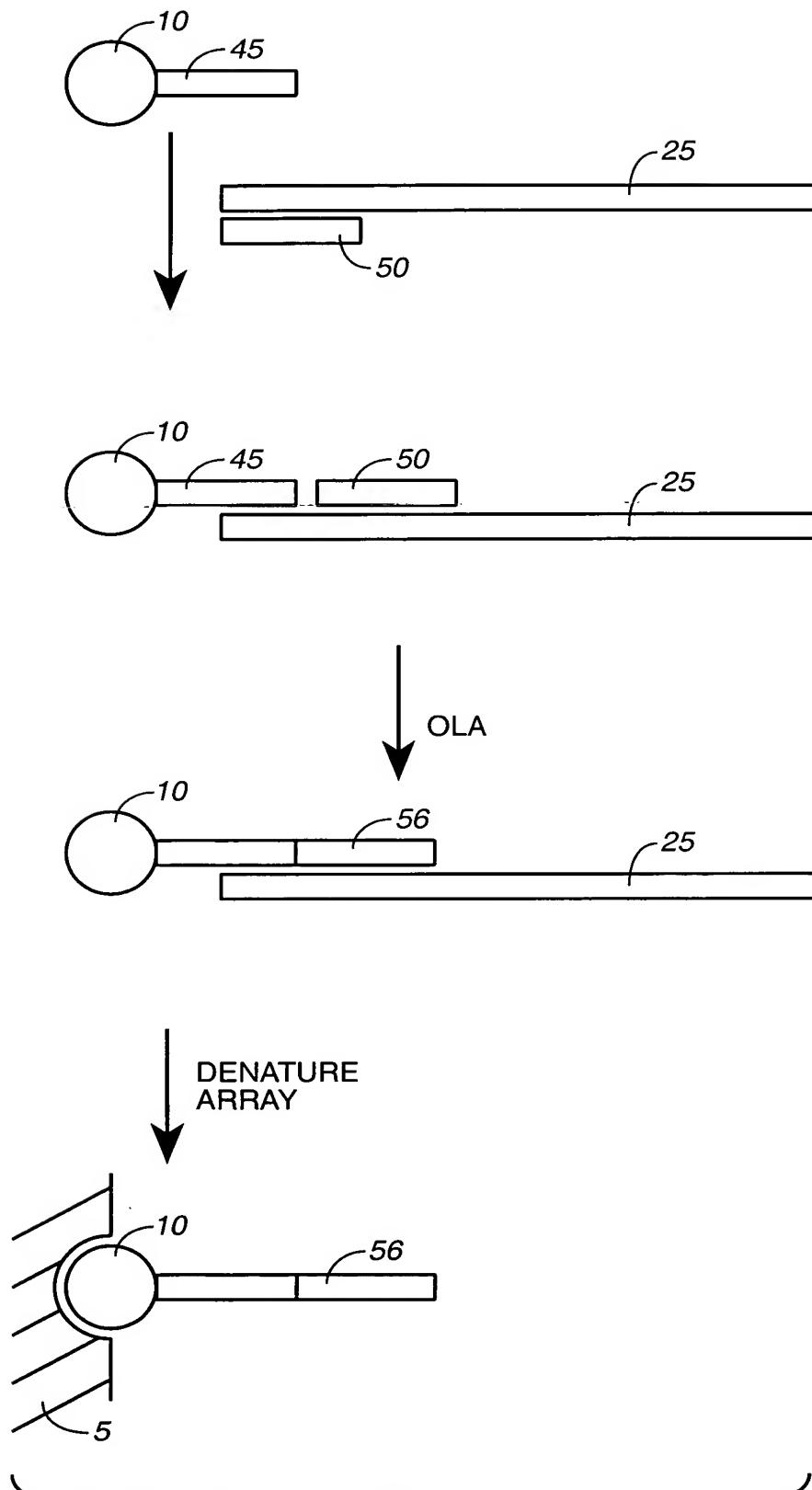


FIG._7A-1

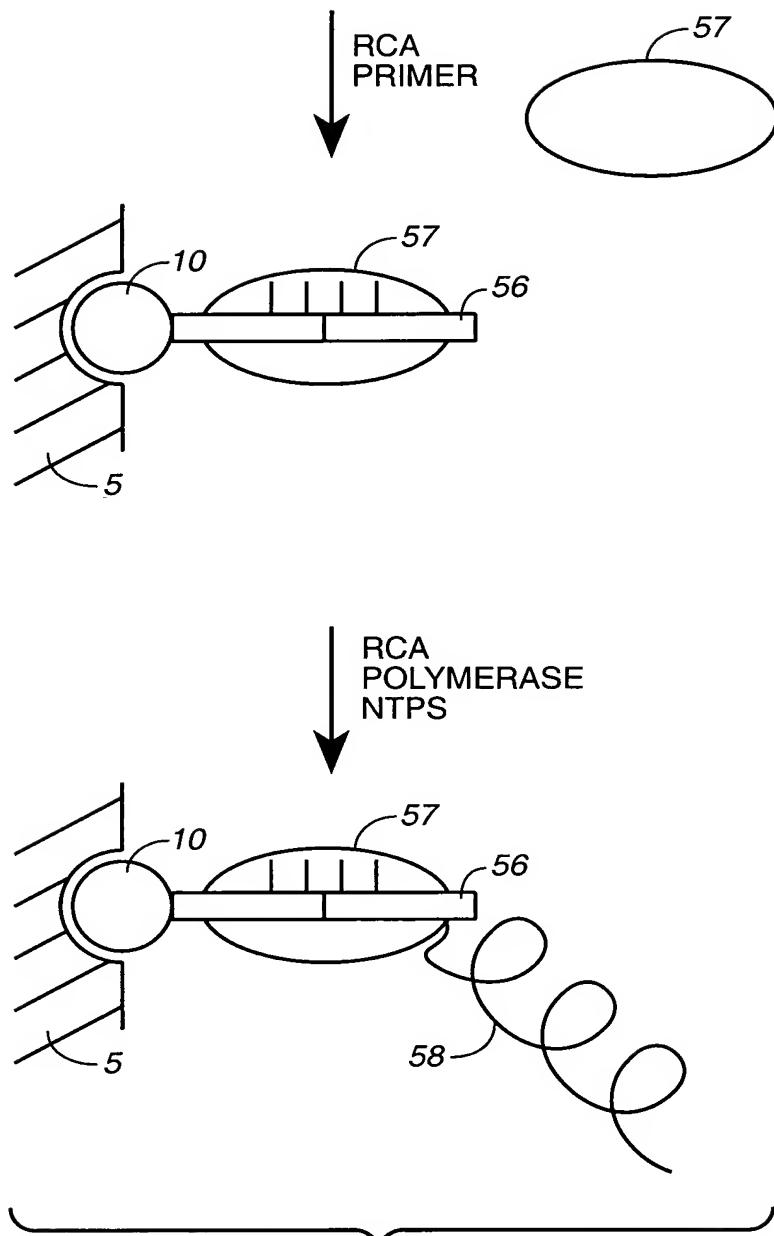


FIG._7A-2

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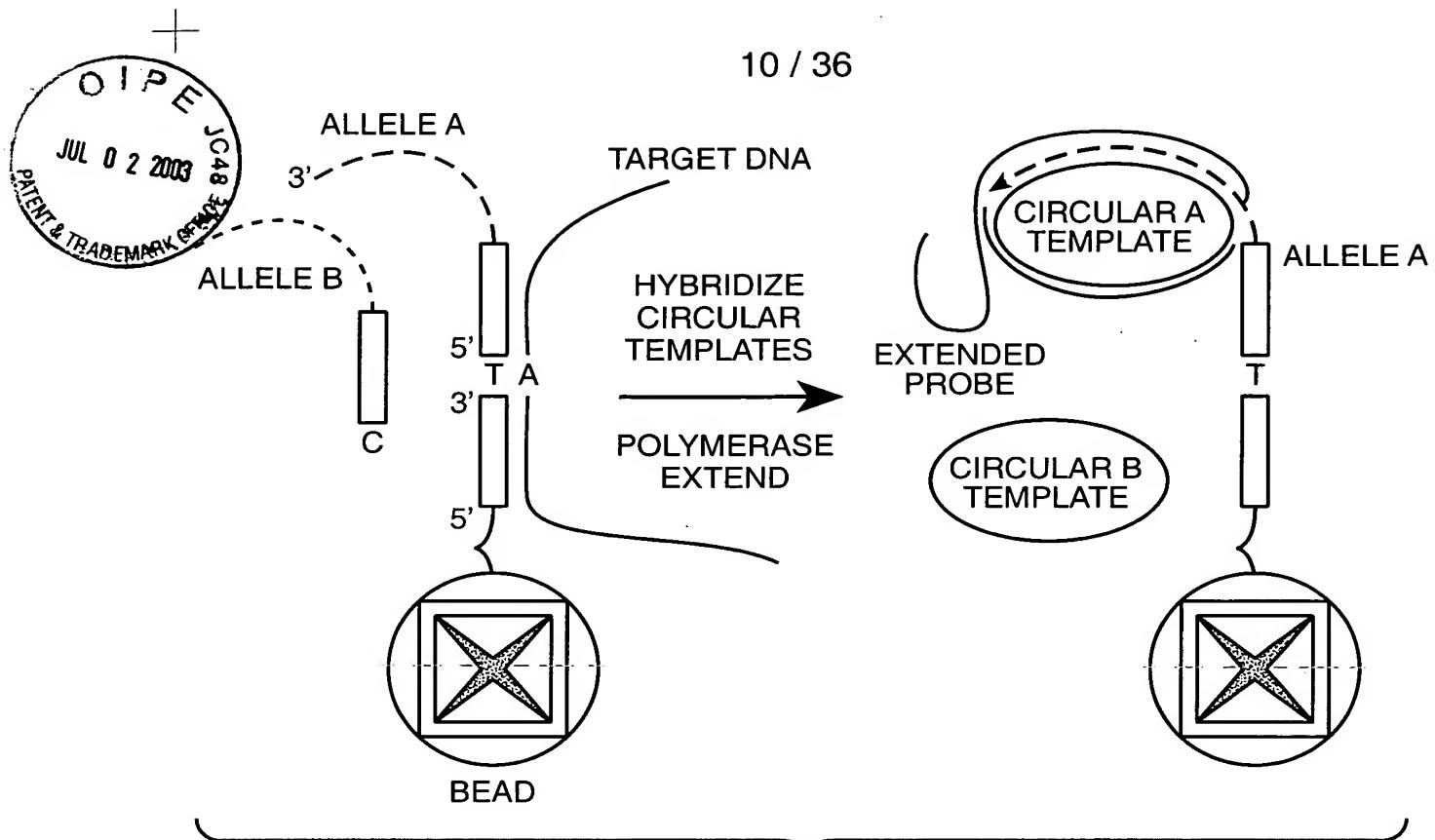


FIG.-7B

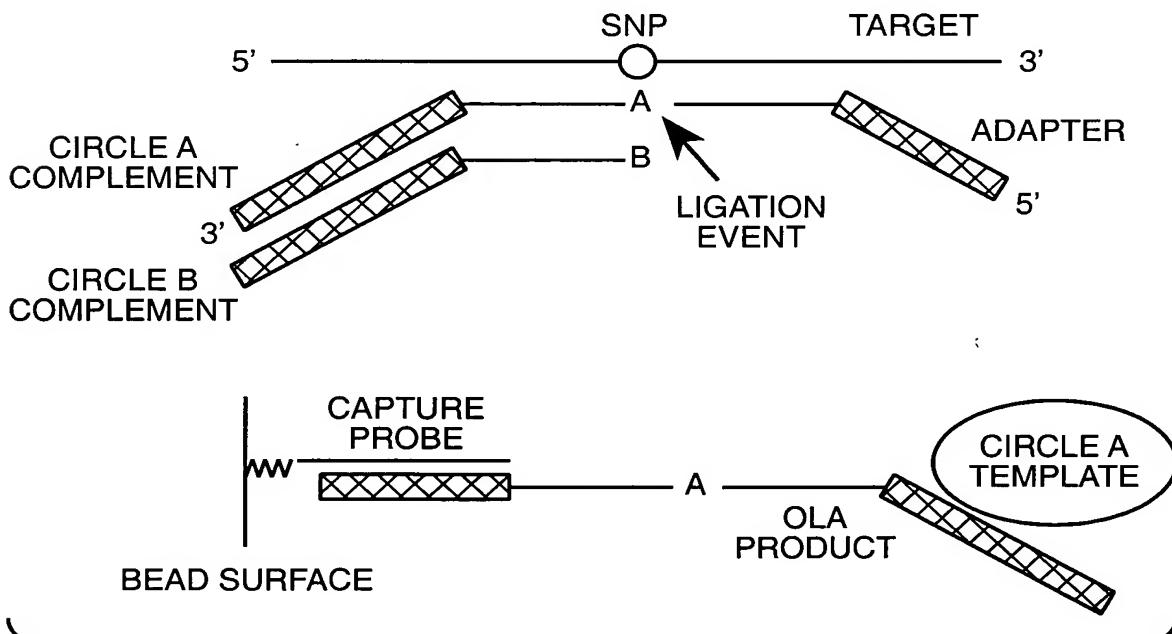
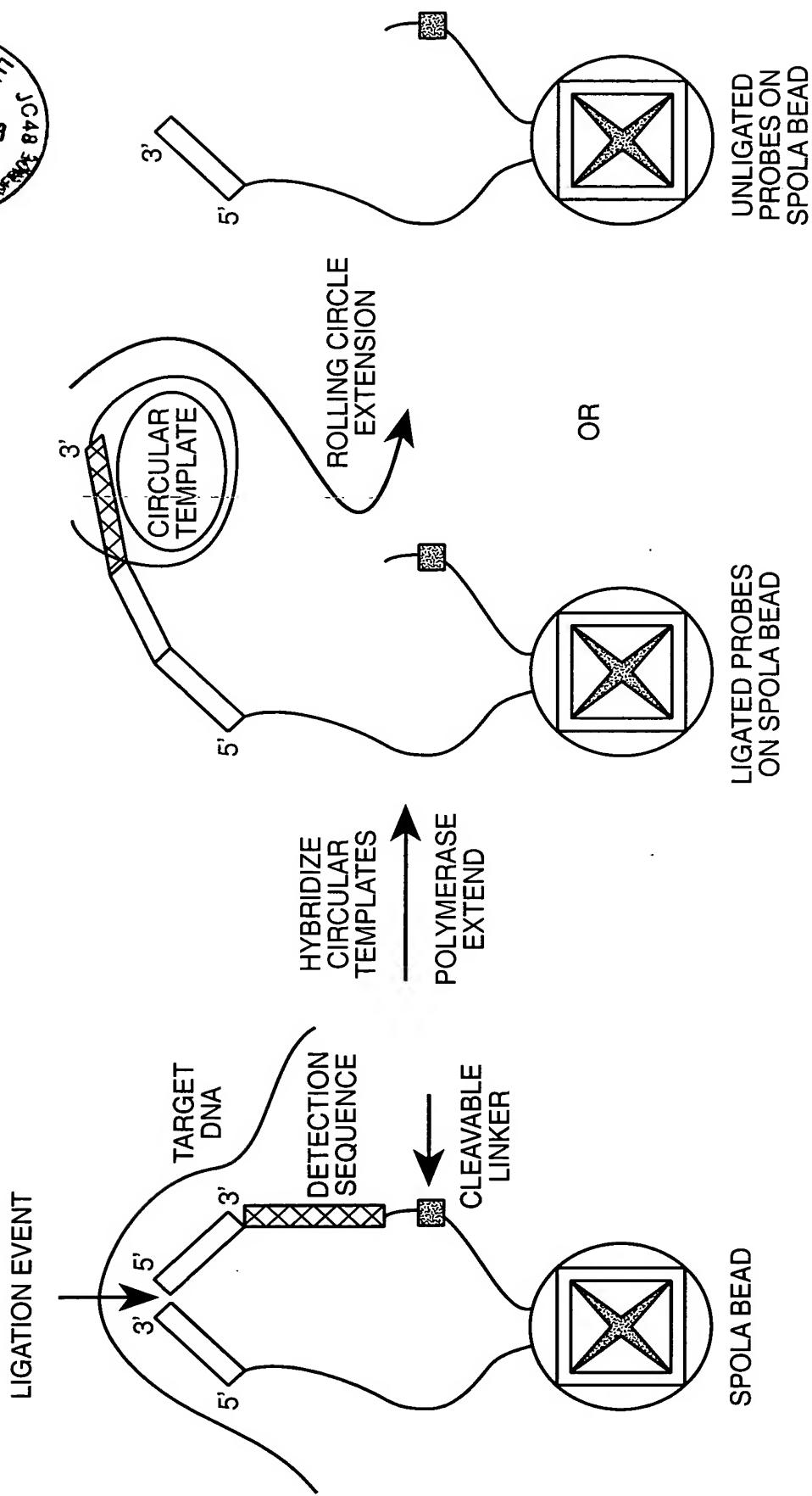
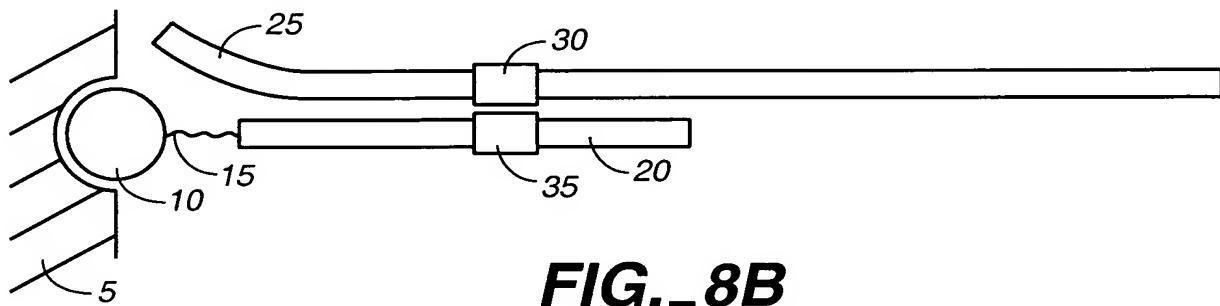
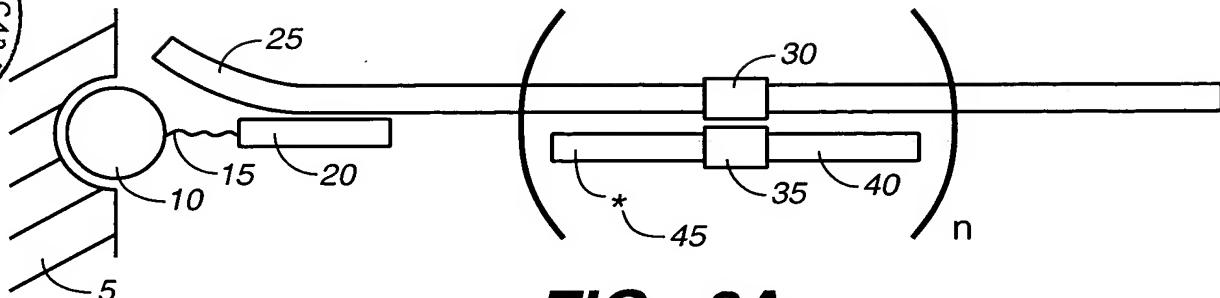
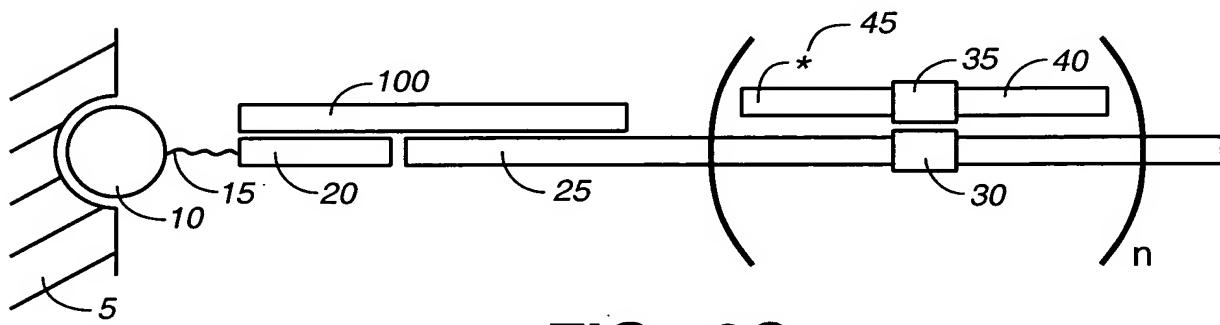
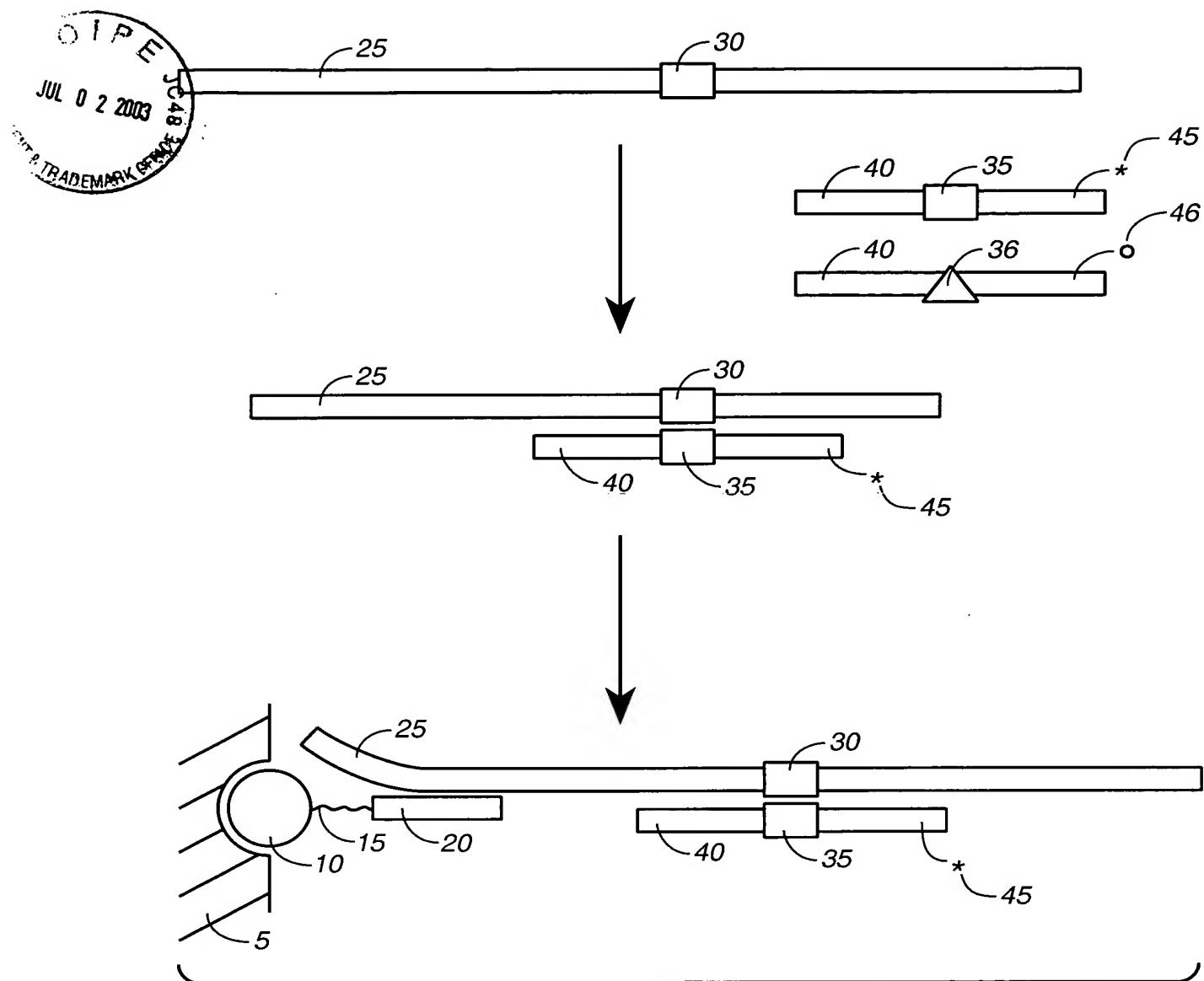
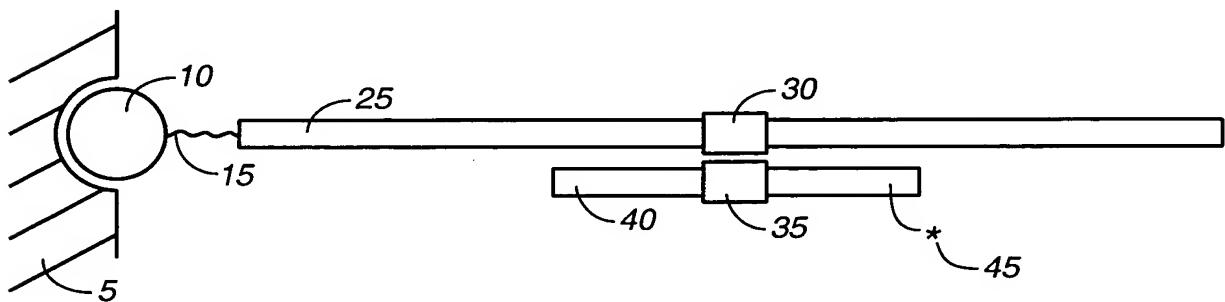


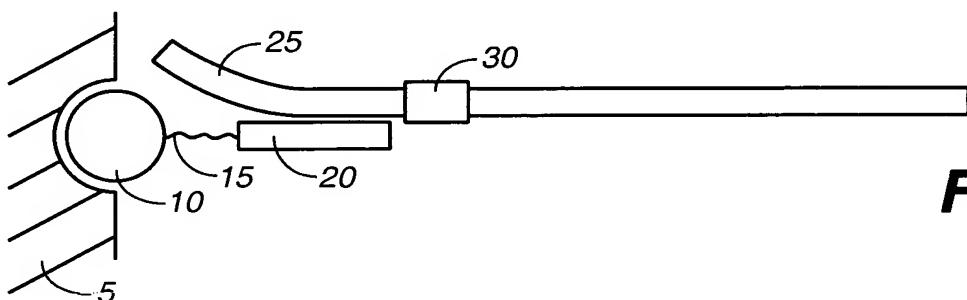
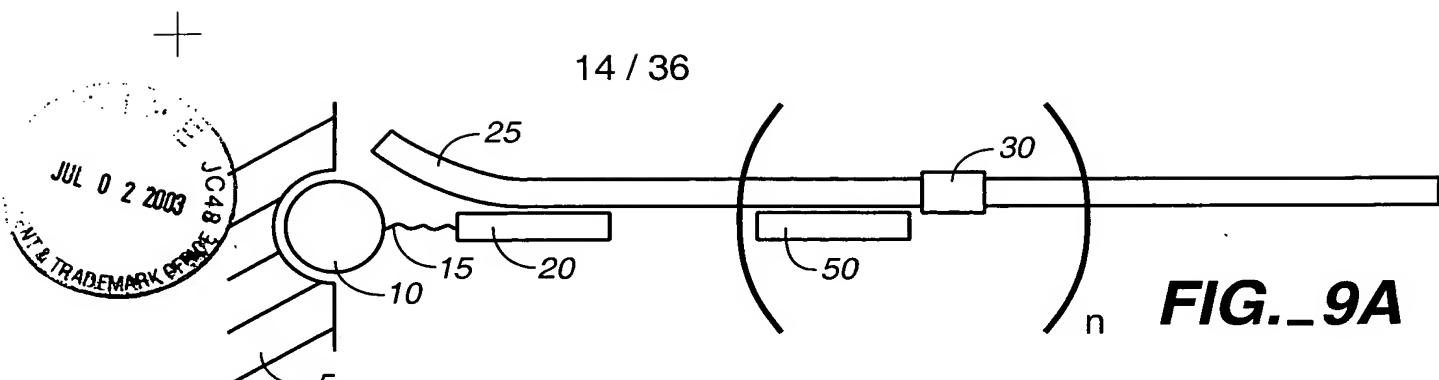
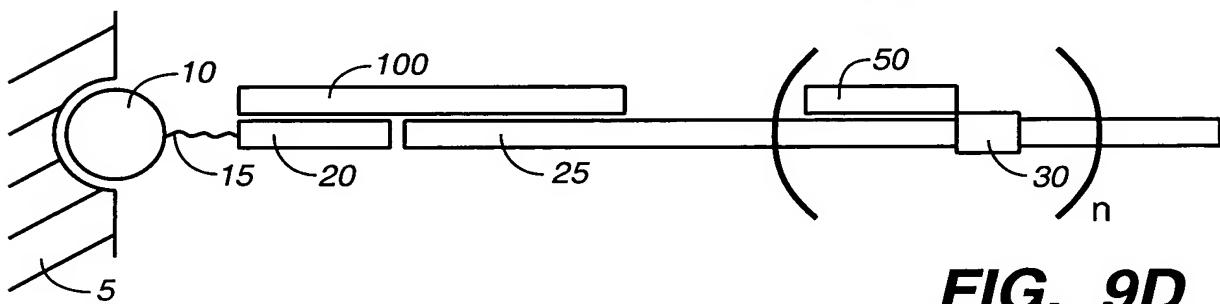
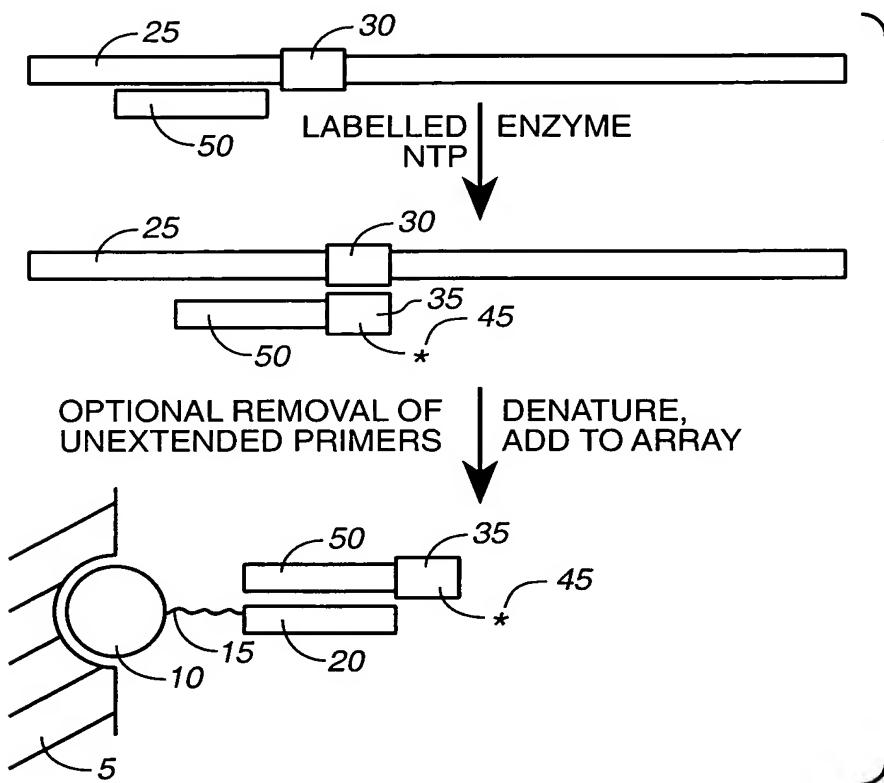
FIG.-7D

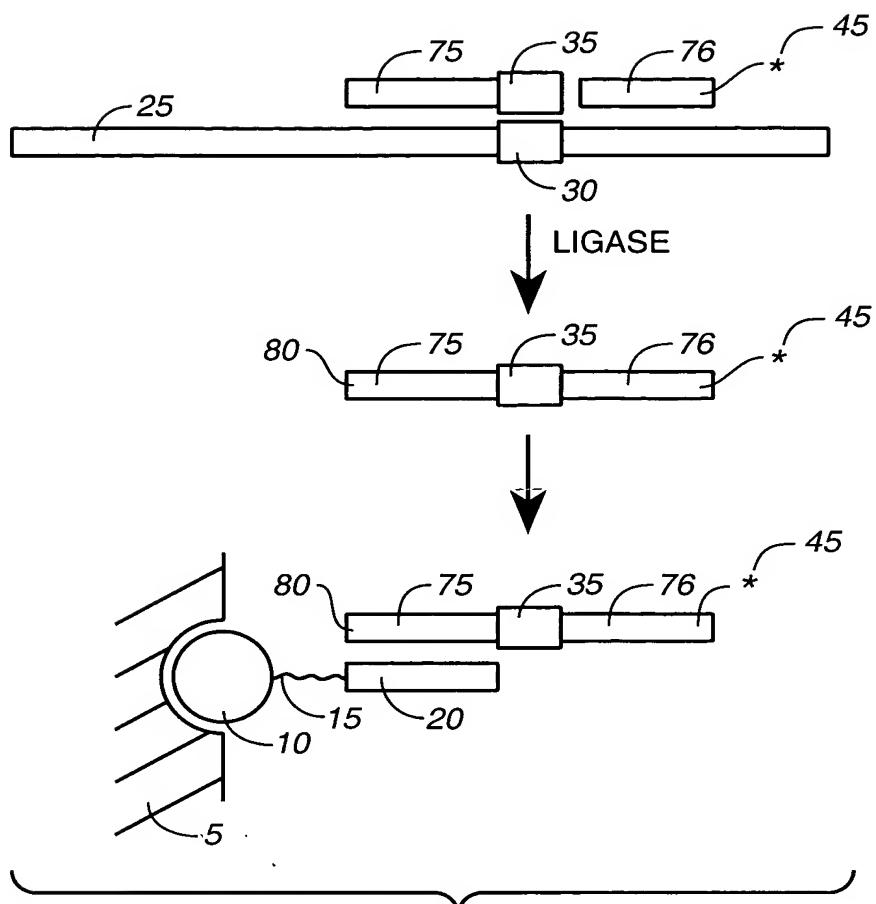
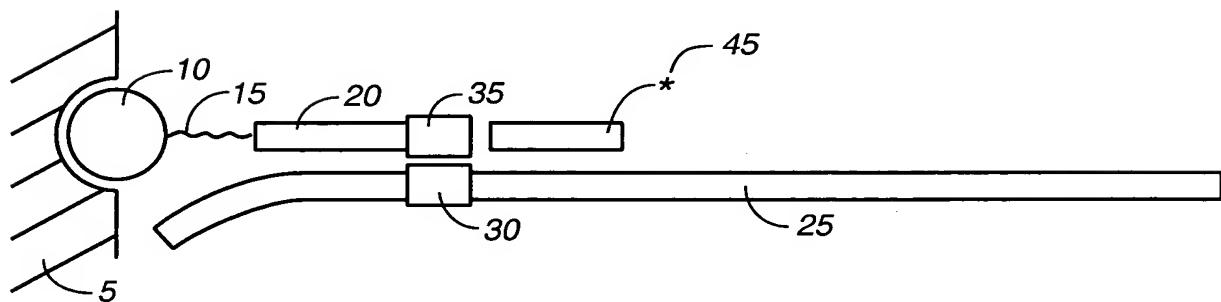


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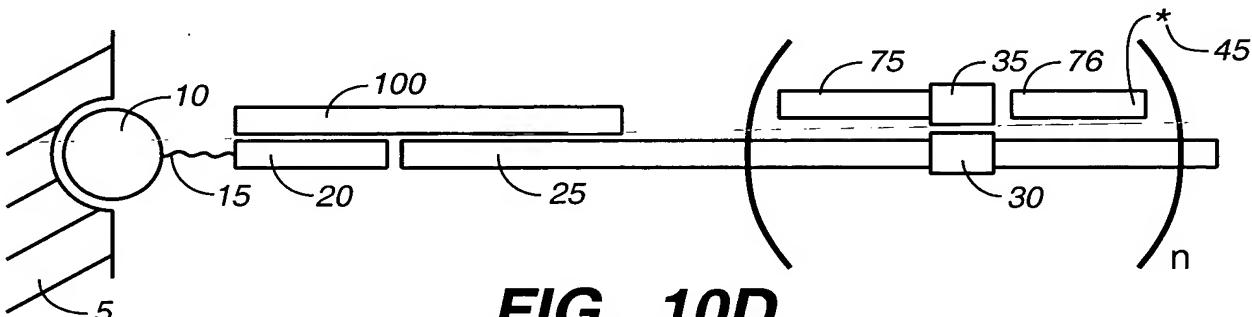
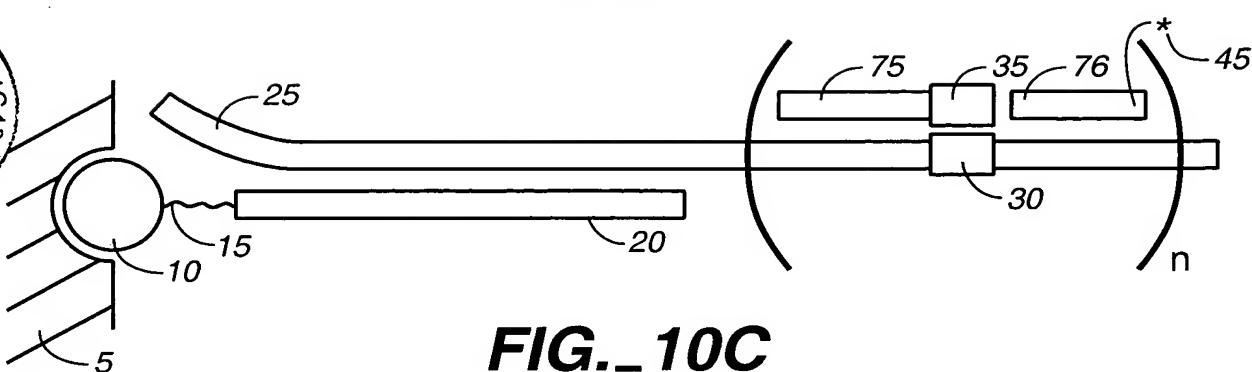
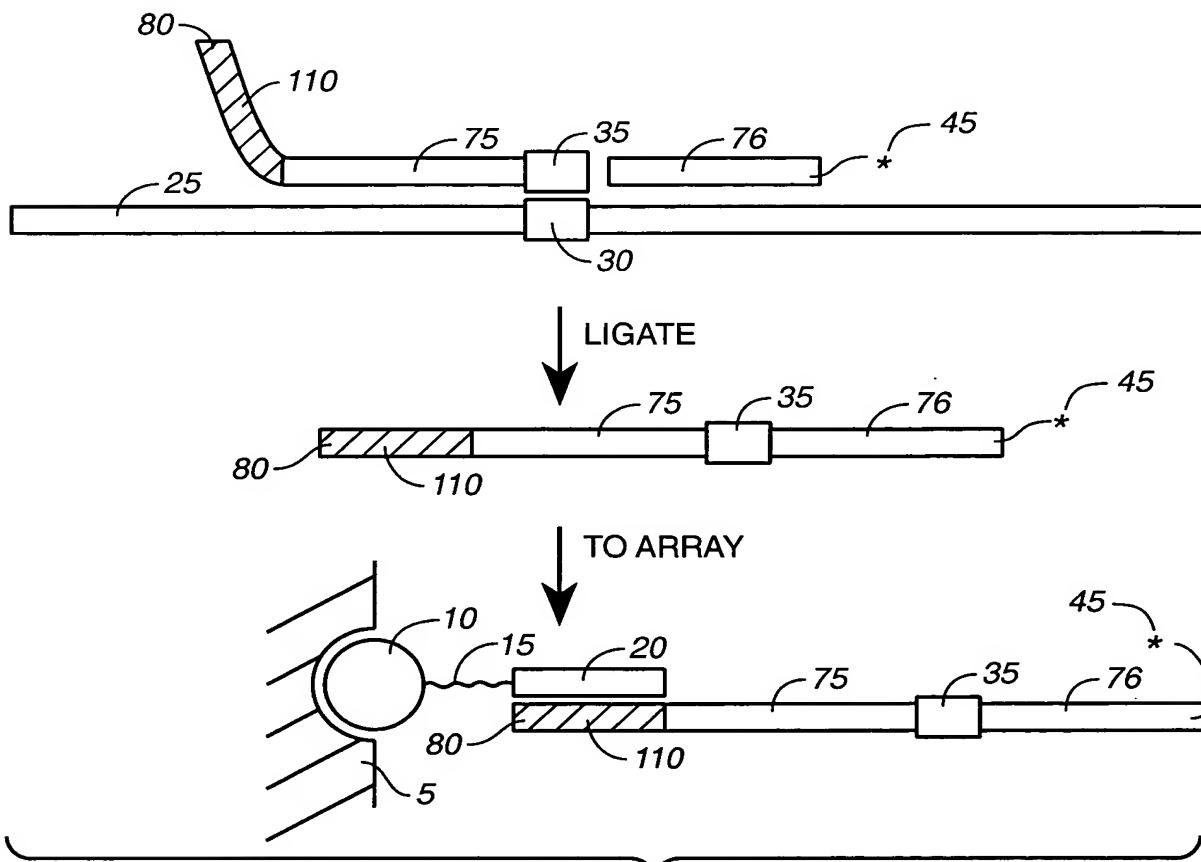
**FIG._8B****FIG._8C**

**FIG._8D****FIG._8E**

**FIG. 9B**

**FIG._ 10A****FIG._ 10B**

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**FIG. 10D****FIG. 10E**

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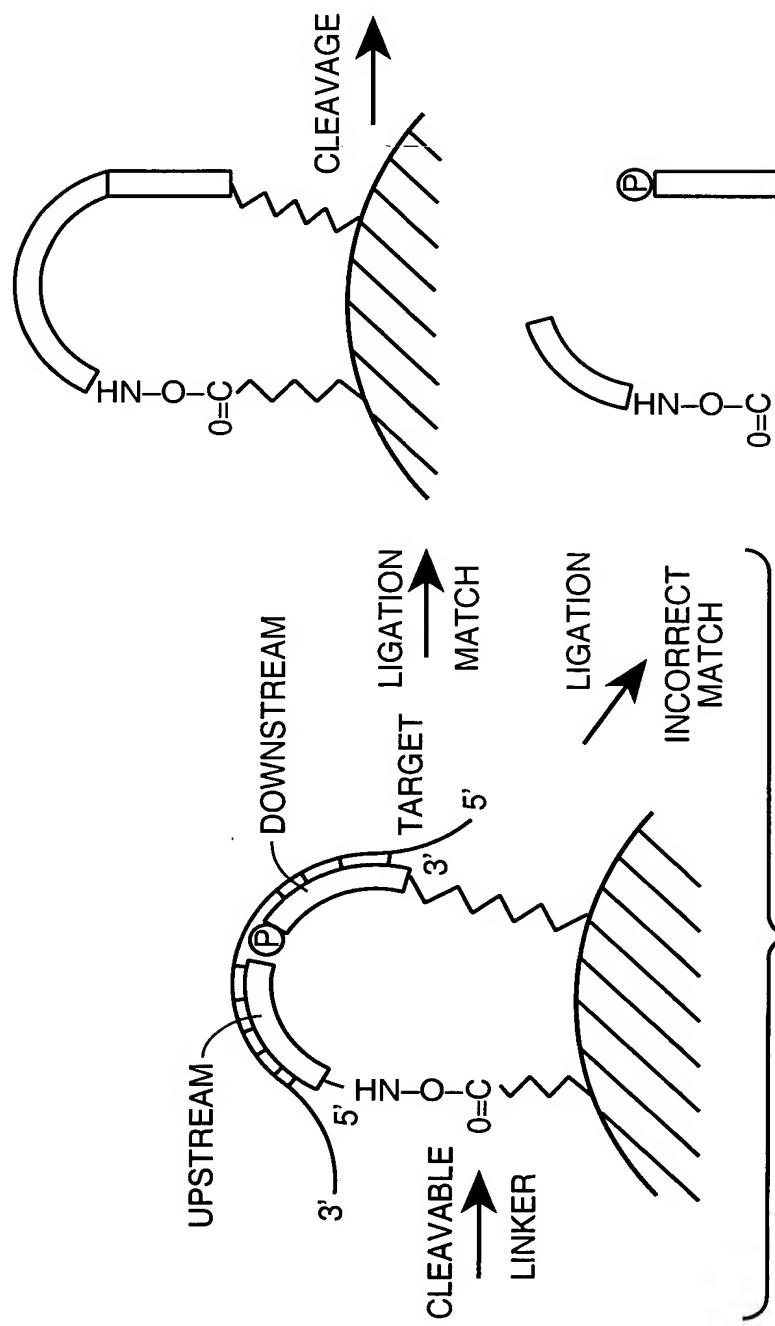


FIG._ 11A

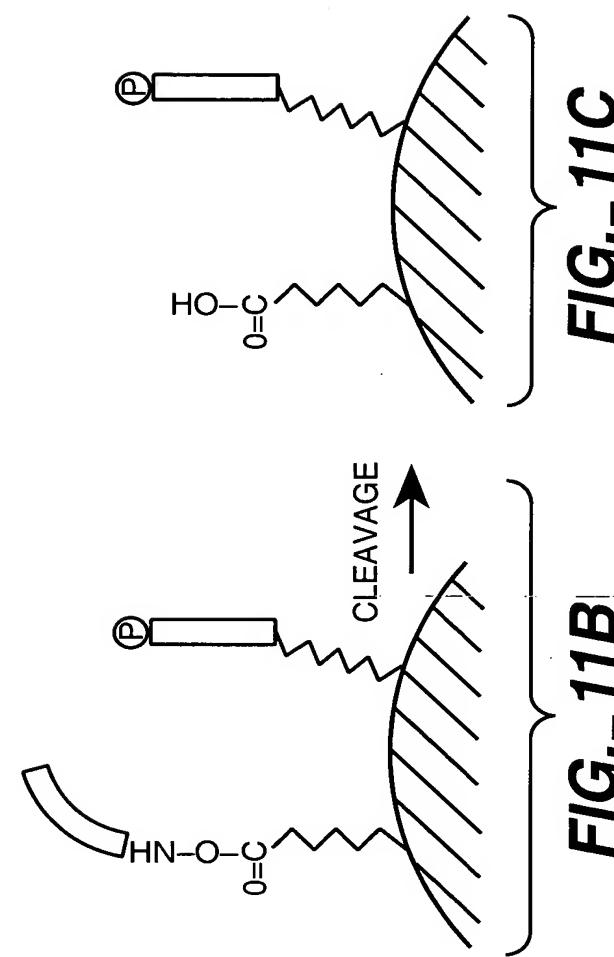


FIG._ 11B

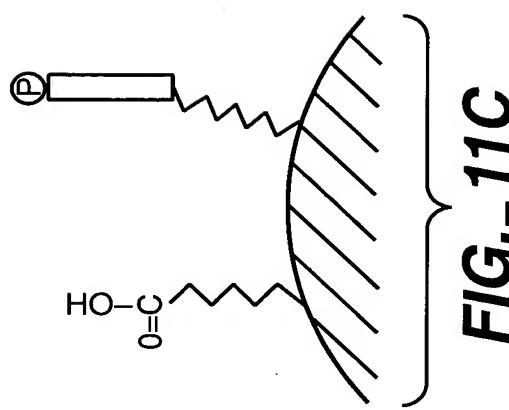
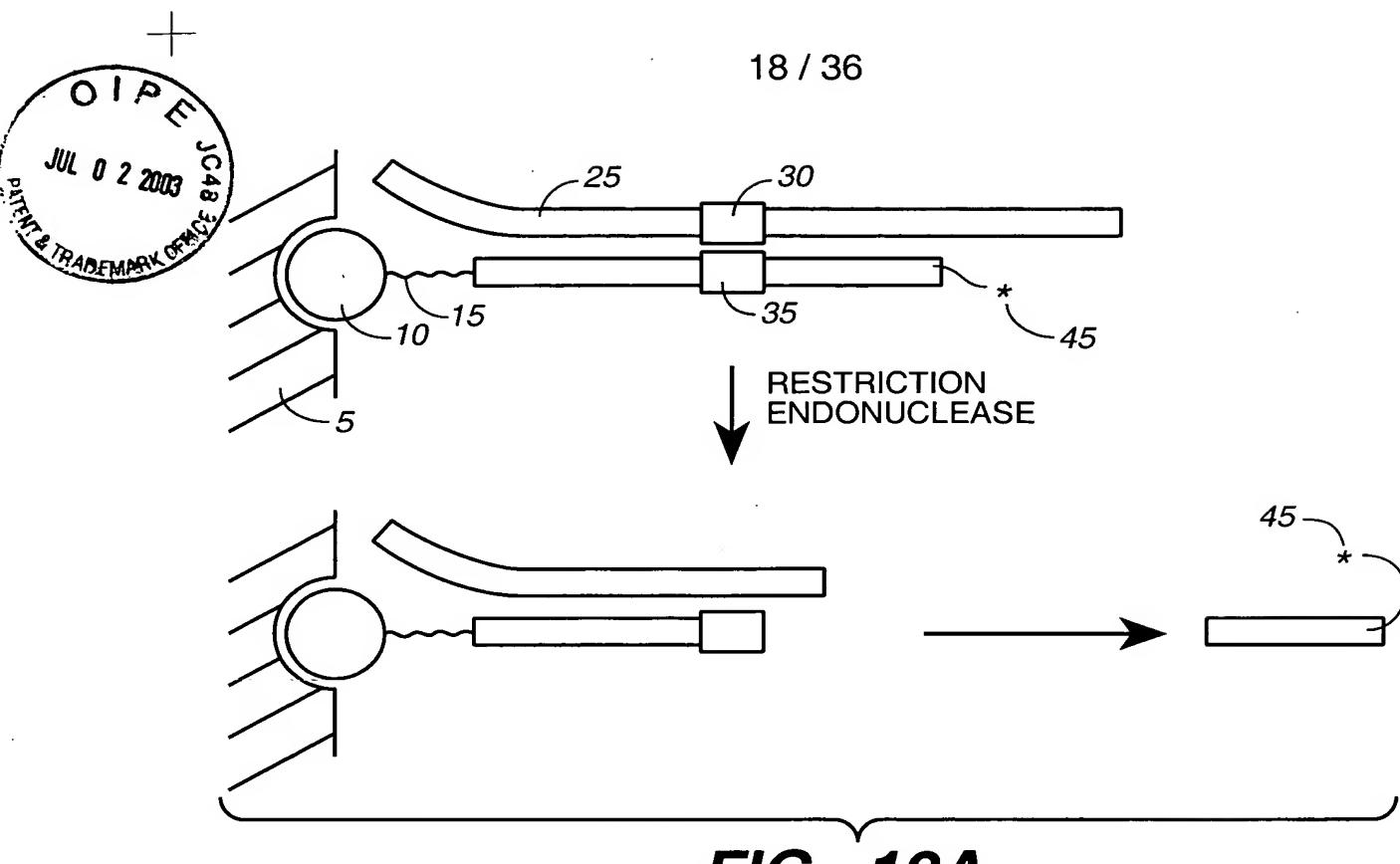
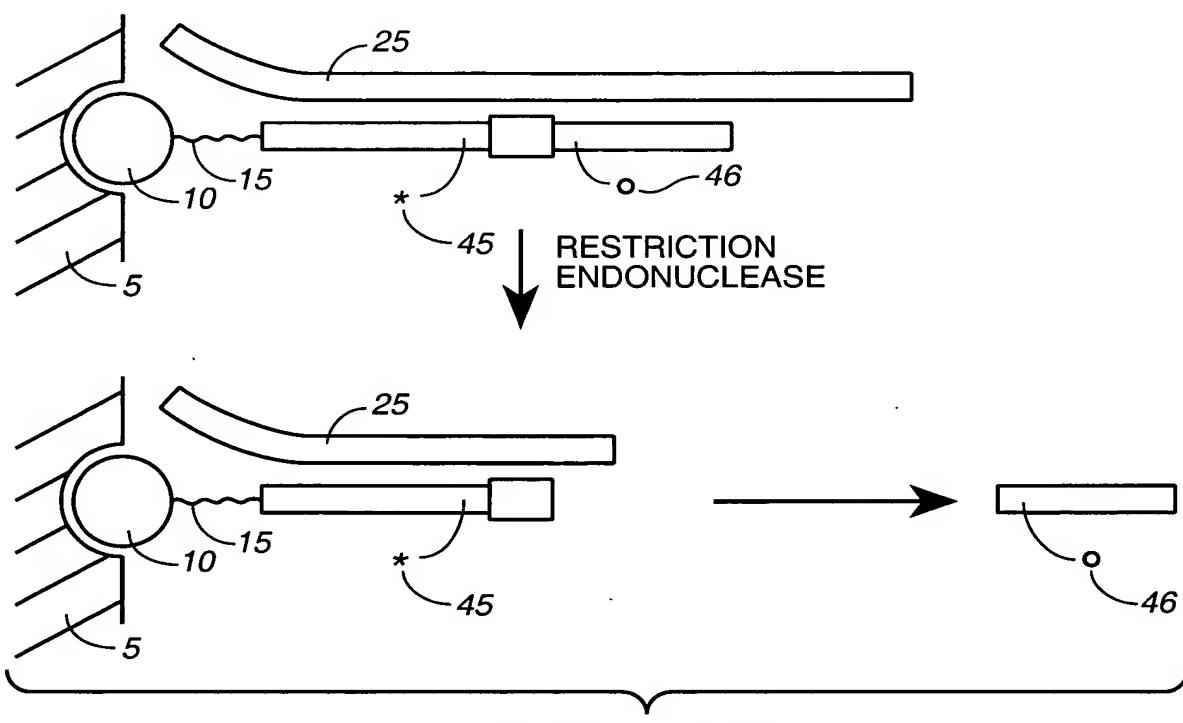
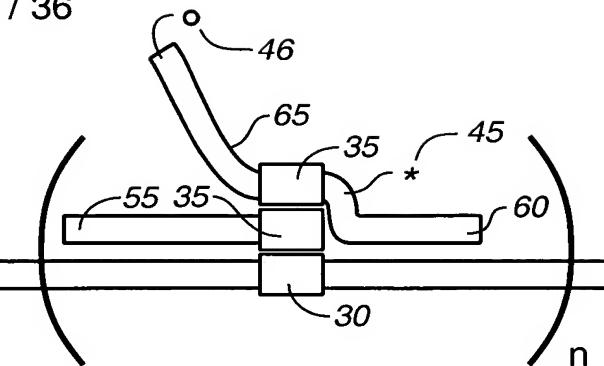
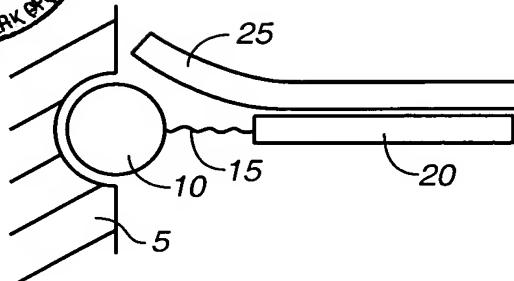
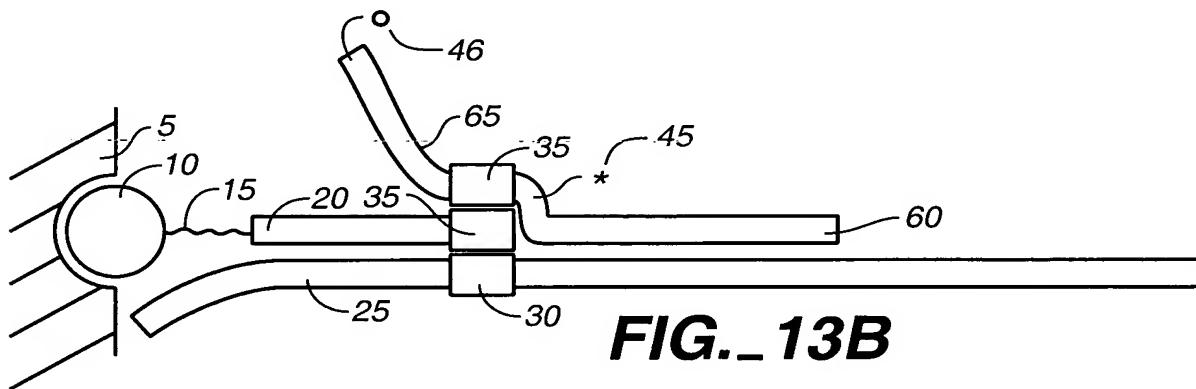
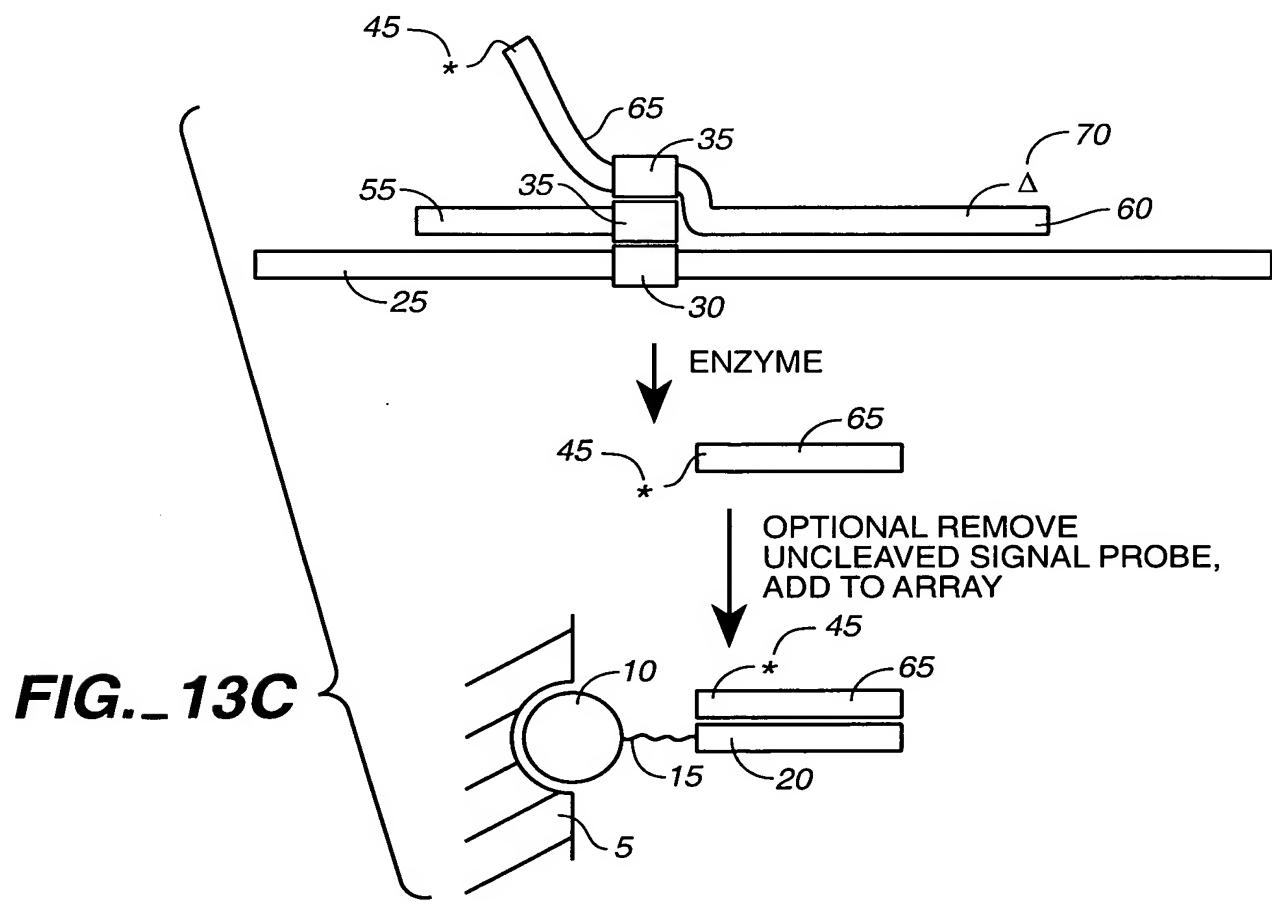
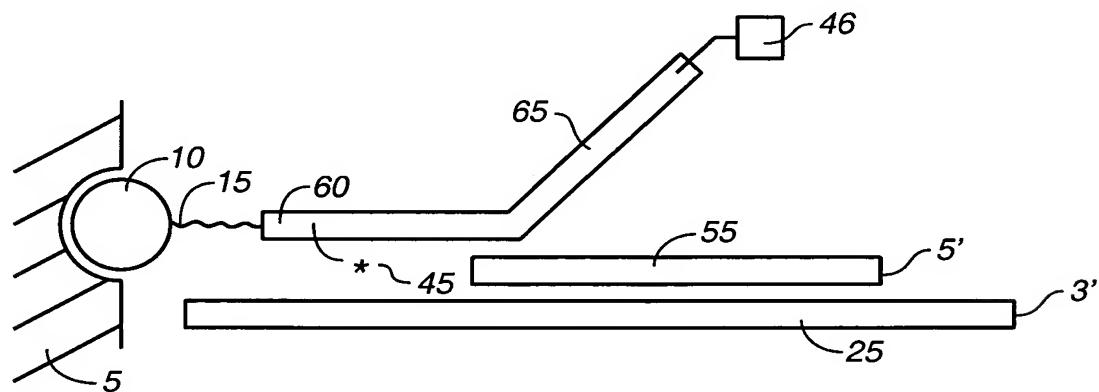
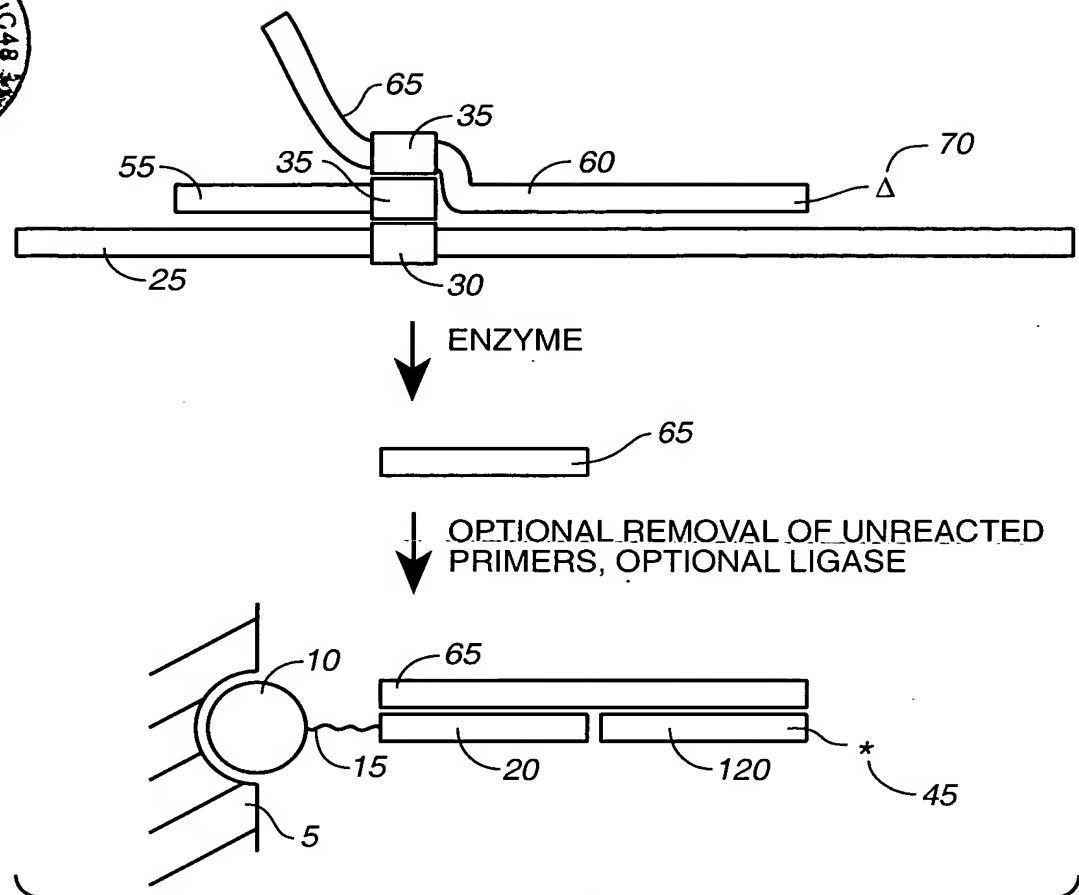


FIG._ 11C

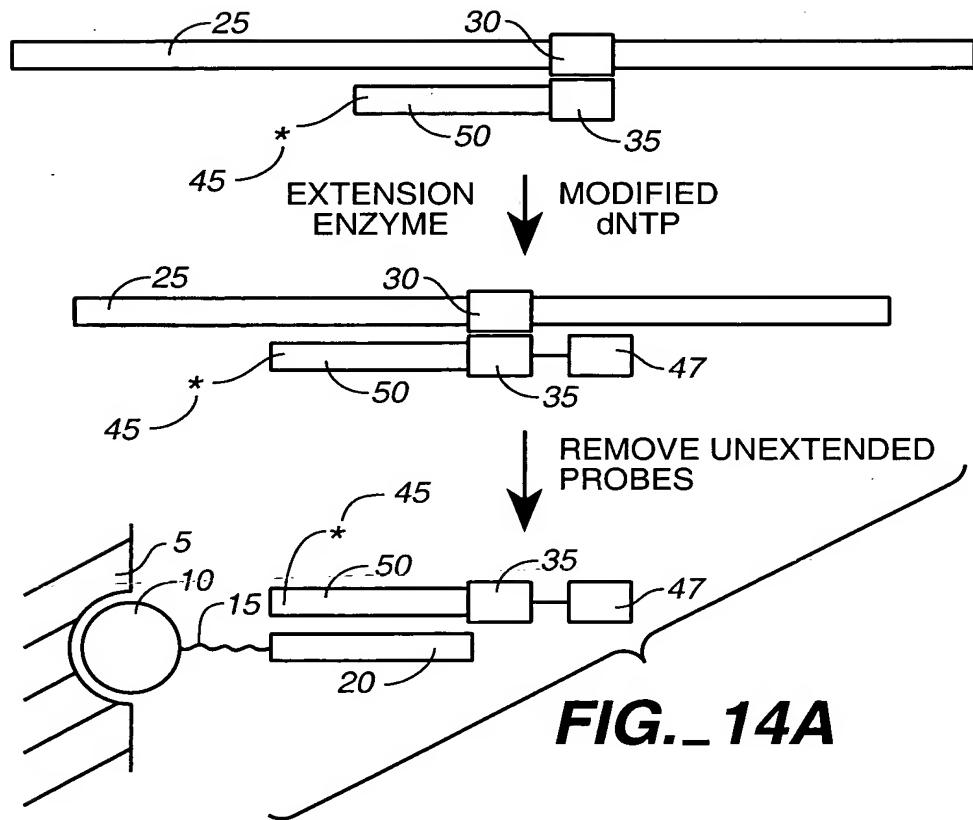
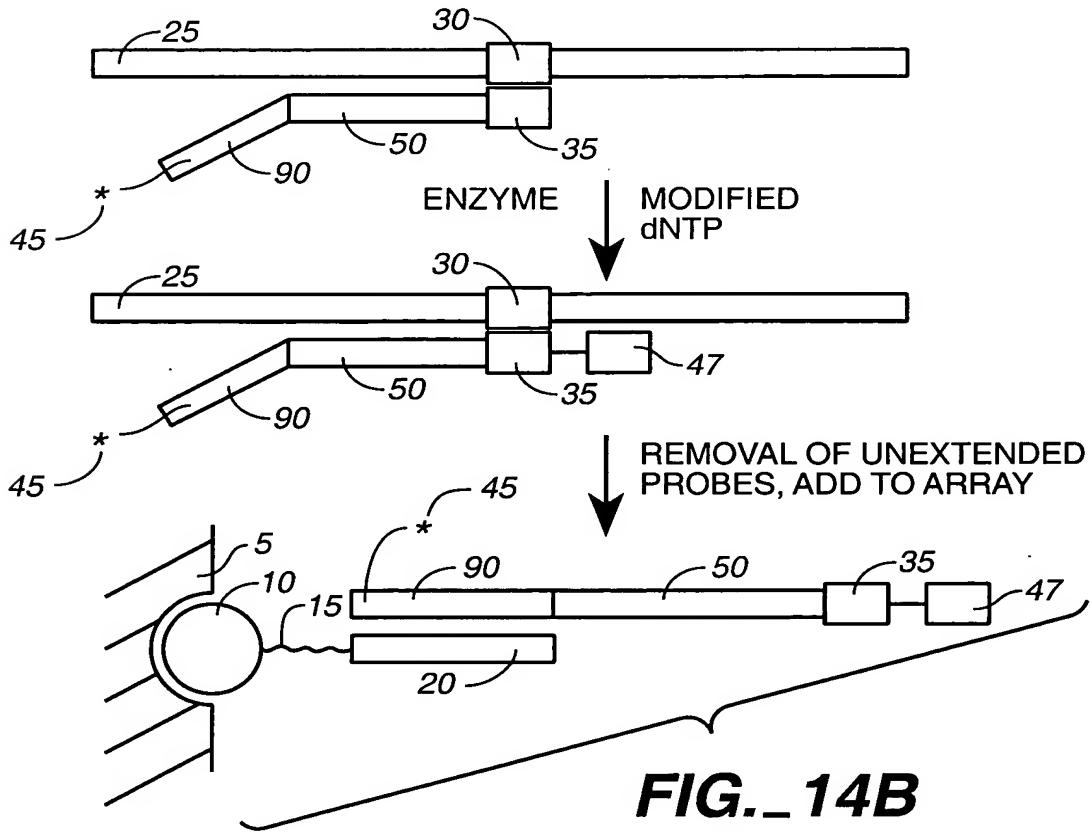
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**FIG._12A****FIG._12B**

**FIG._ 13A****FIG._ 13B****FIG._ 13C**

**FIG._13E**

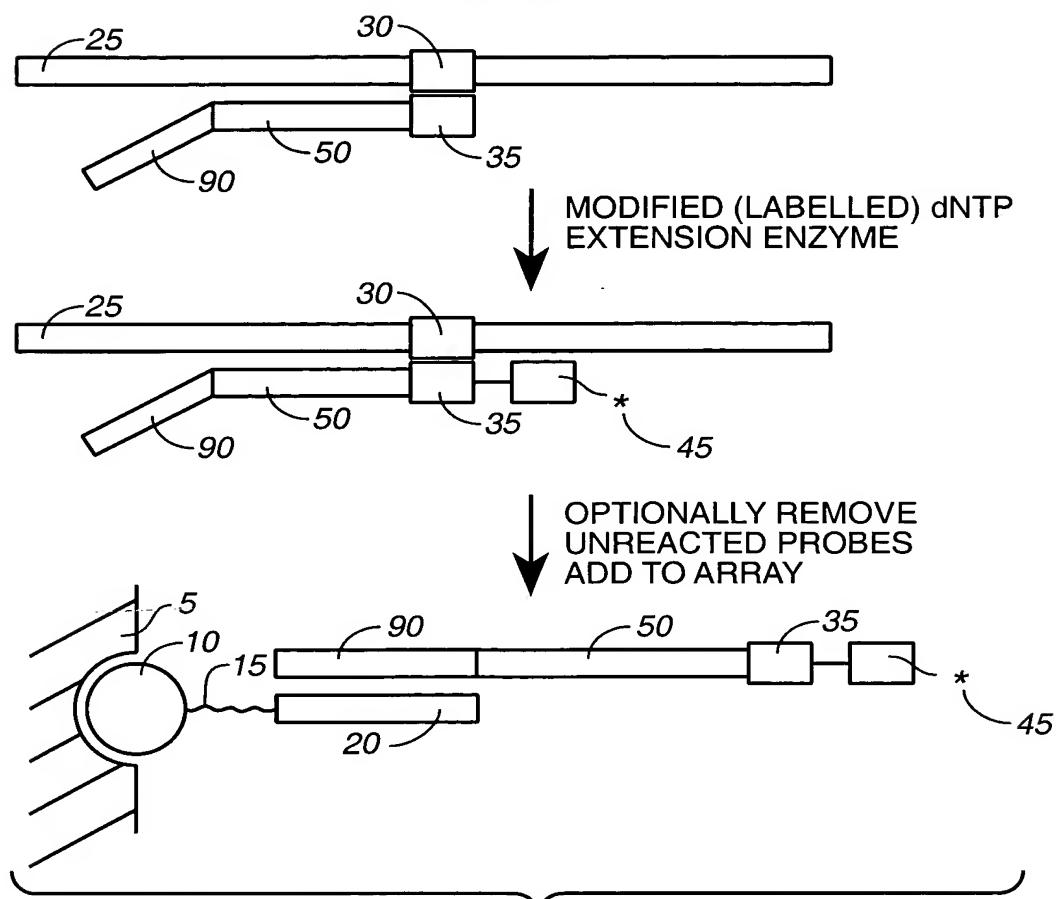
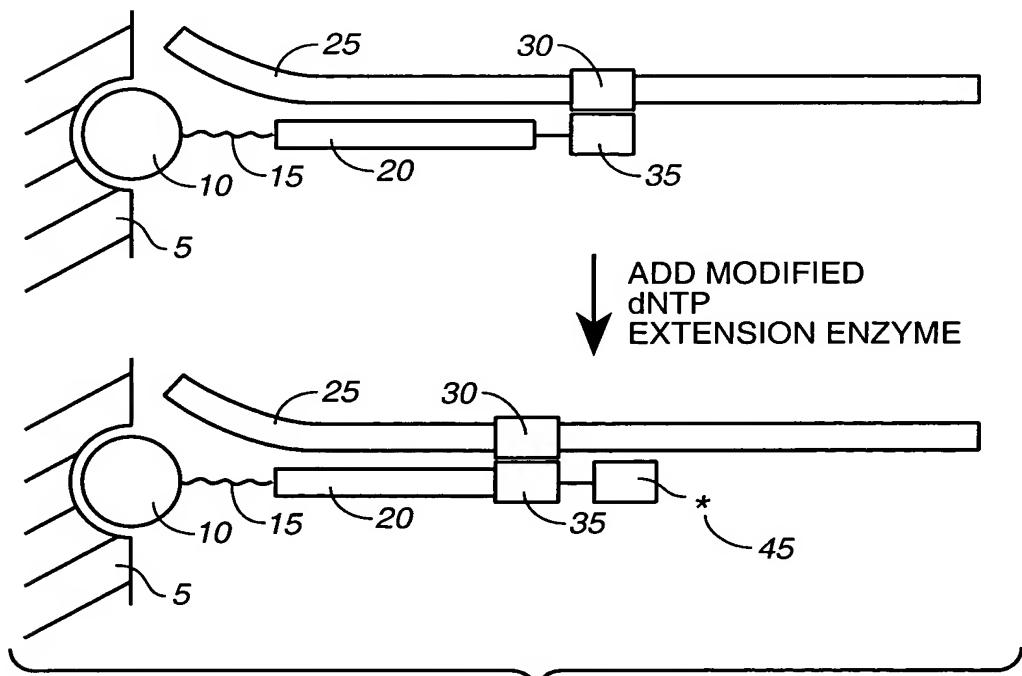
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**FIG._ 14A****FIG._ 14B**

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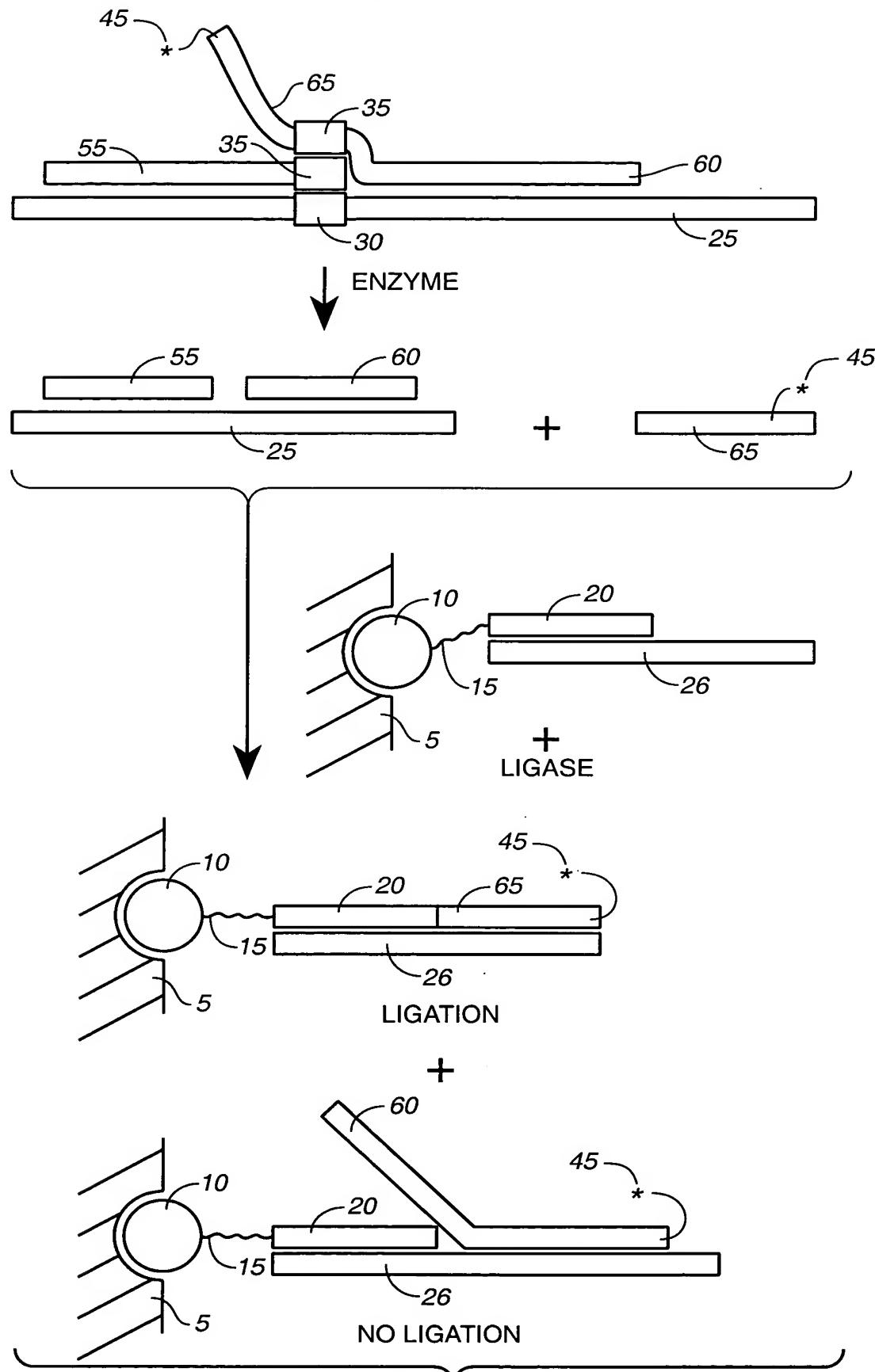


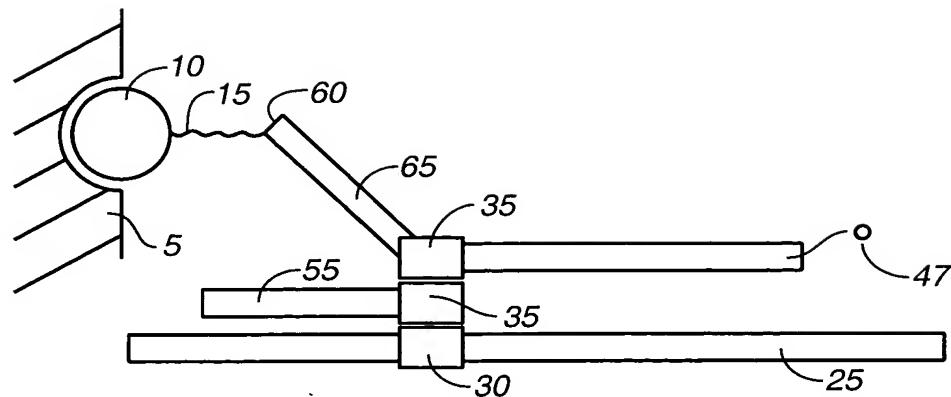
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**FIG._ 14C****FIG._ 14D**

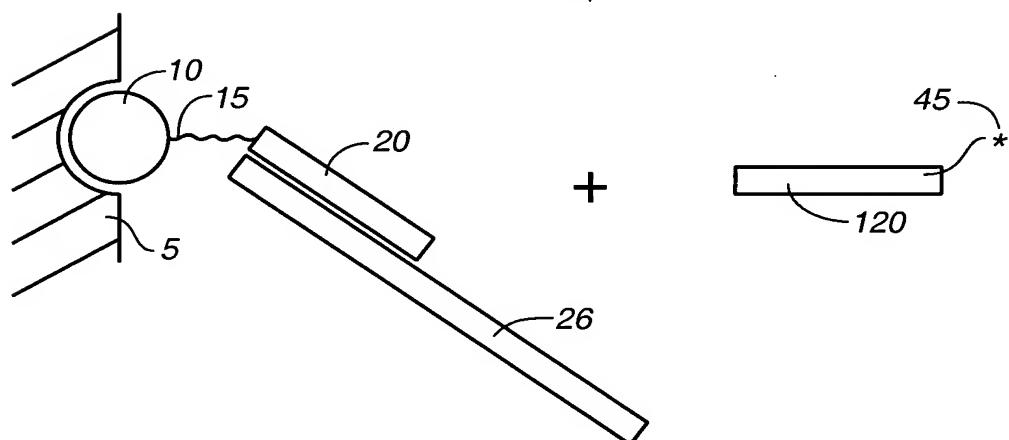
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**FIG._15A**



CLEAVAGE ENZYME
TARGET TEMPLATE



LIGATION

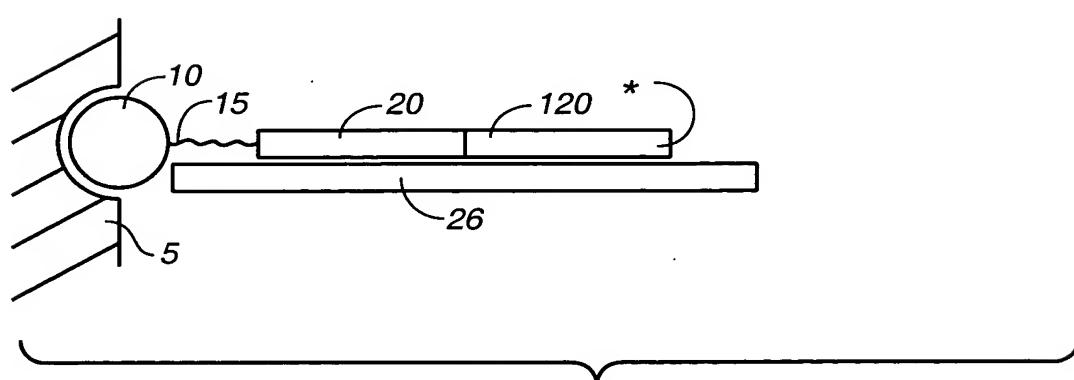
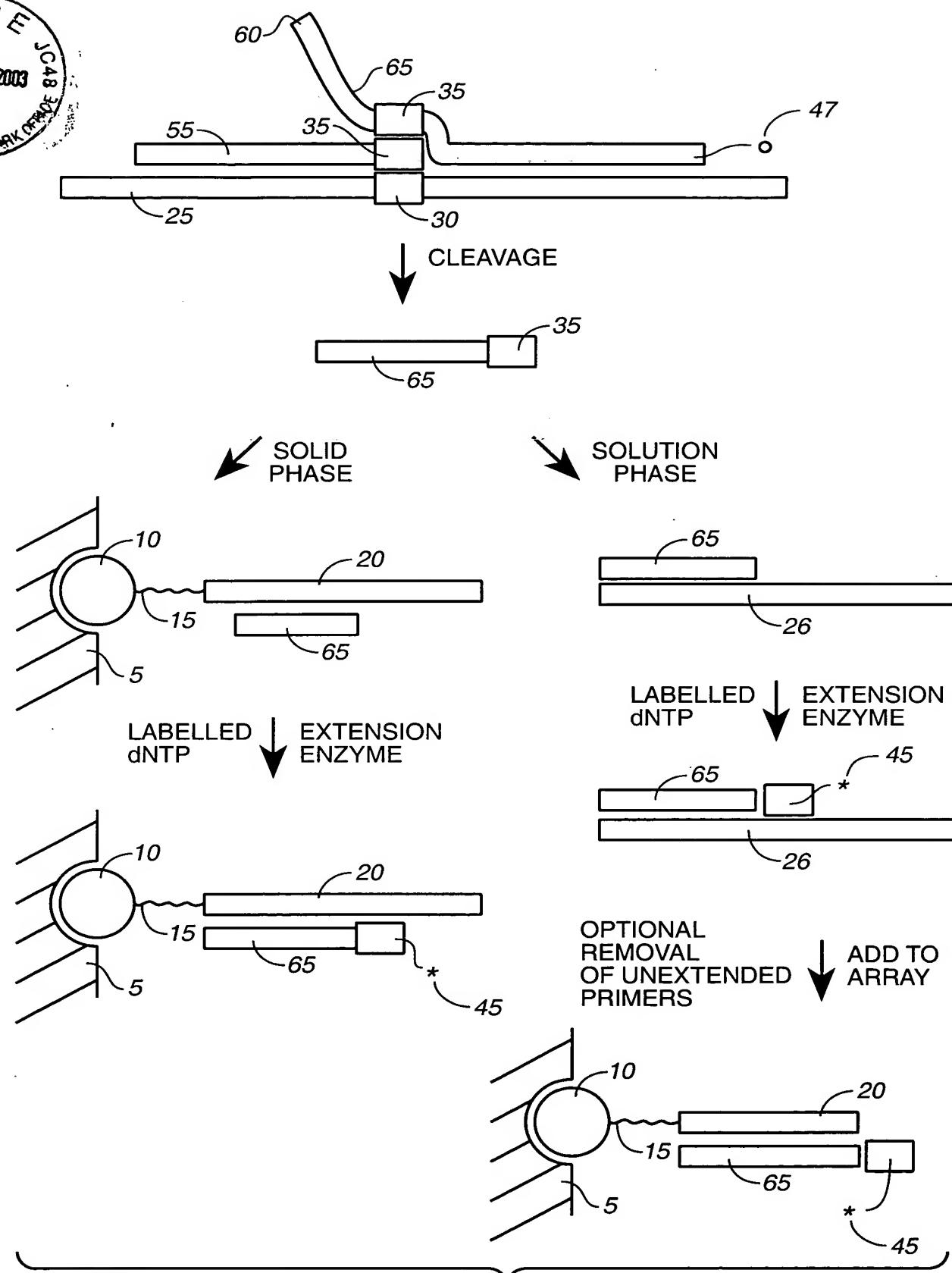
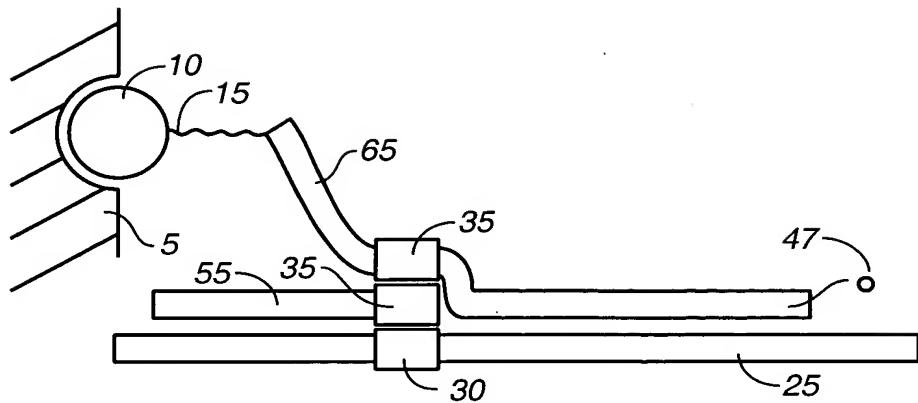


FIG._15B

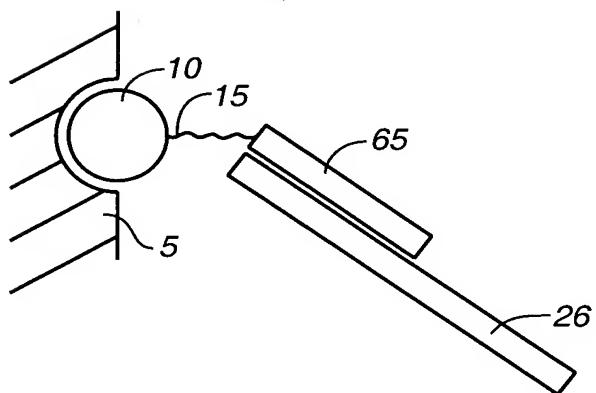
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**FIG._16A**

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CLEAVAGE
ADD TARGET TEMPLATE



LABELLED
dNTP EXTENSION
ENZYME

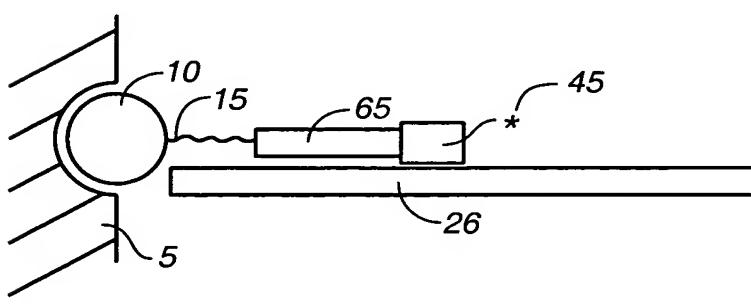
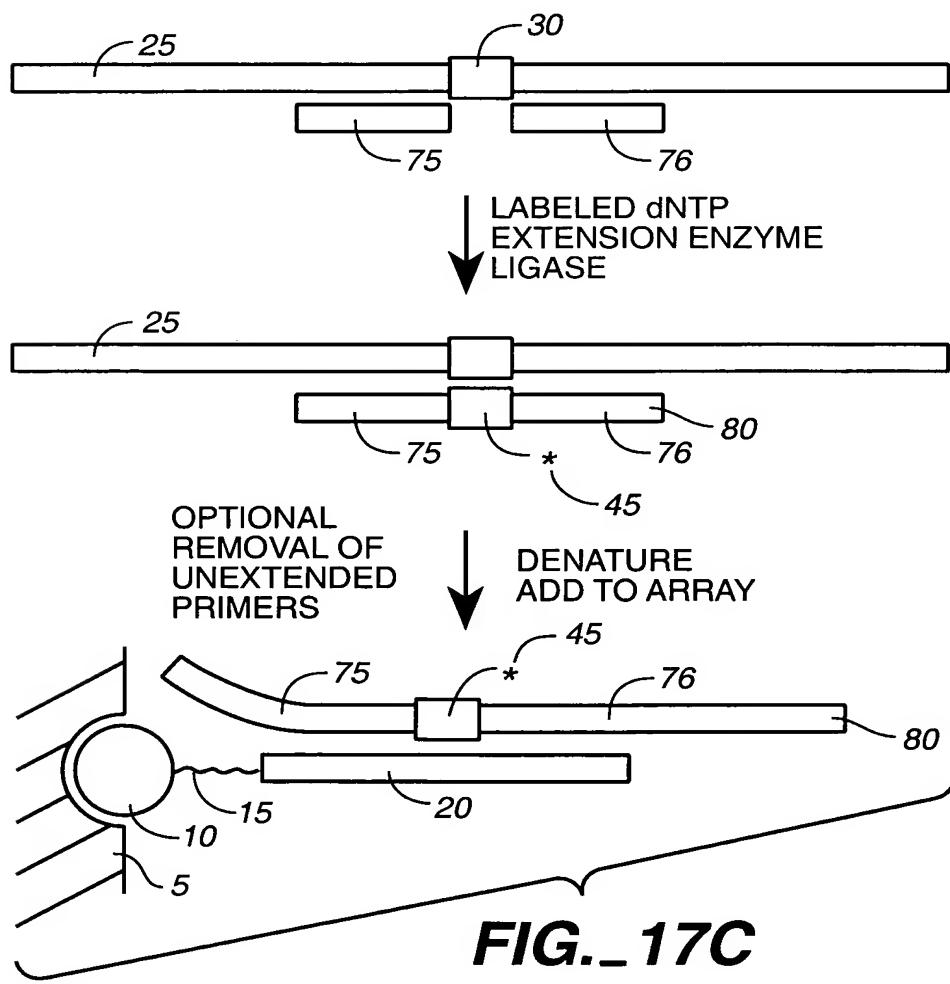
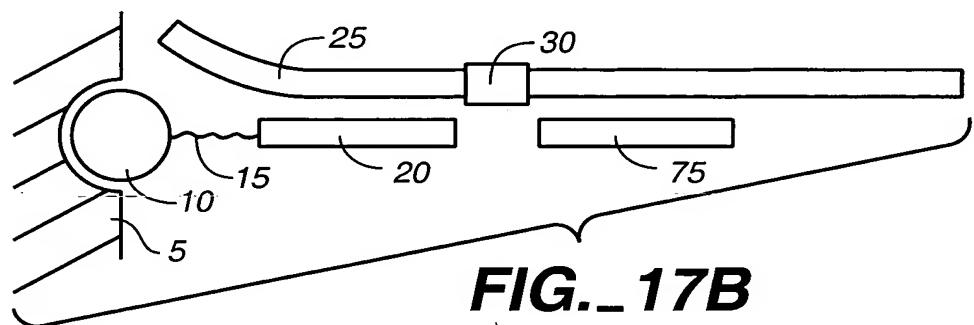
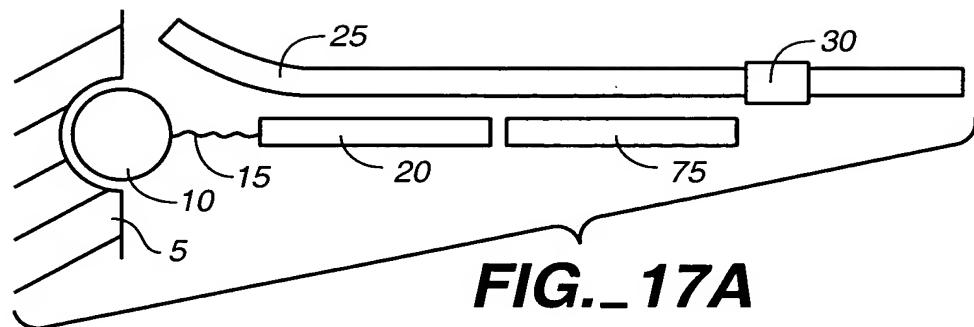


FIG._ 16B

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3' CCC ————— TTTTTTTT-P5'
cDNA

(1) CIRCULARIZE cDNA
WITH GUIDE LINKER



GGGAAAAA
CCCCTTTTTTT
P

(2) LIGATE



GGGAAAAA
CCCTTTTTTT

(3) EXTEND AS
ROLLING CIRCLE



GGGAAAAA

CCCTTTTTTT

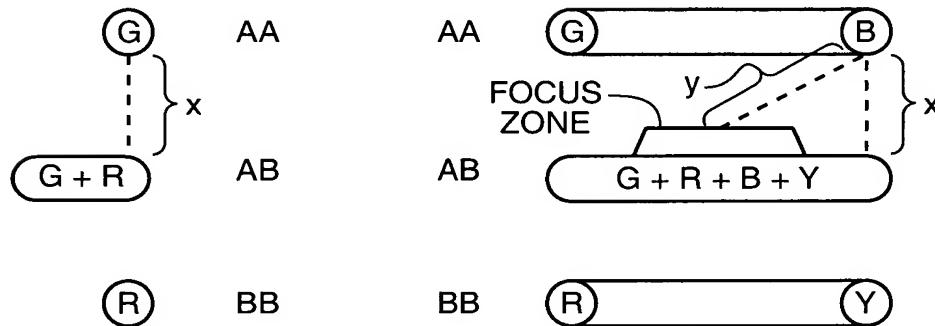
FIG._18

SINGLE LABELED PROBE

| GENOTYPE | SIGNAL |
|----------|--------|
| AA | G / G |
| AB | G / R |
| BB | R / R |

MULTI-LABELED PROBE

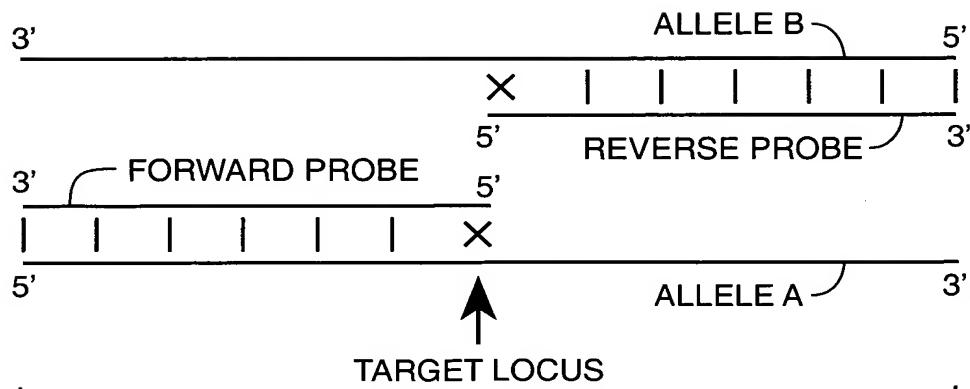
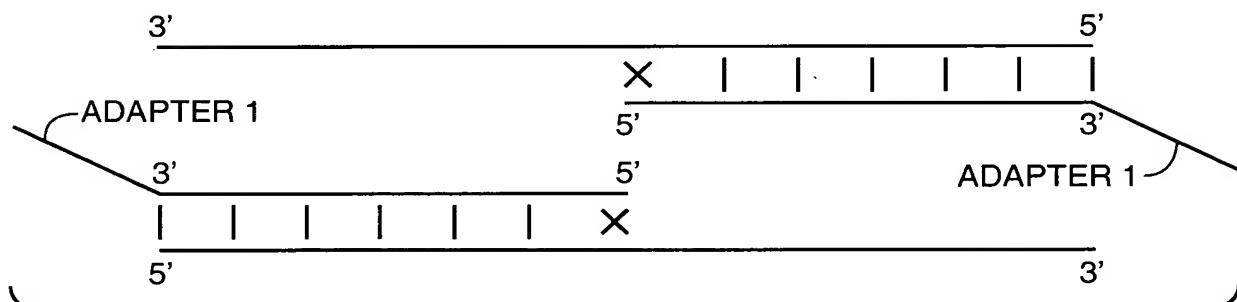
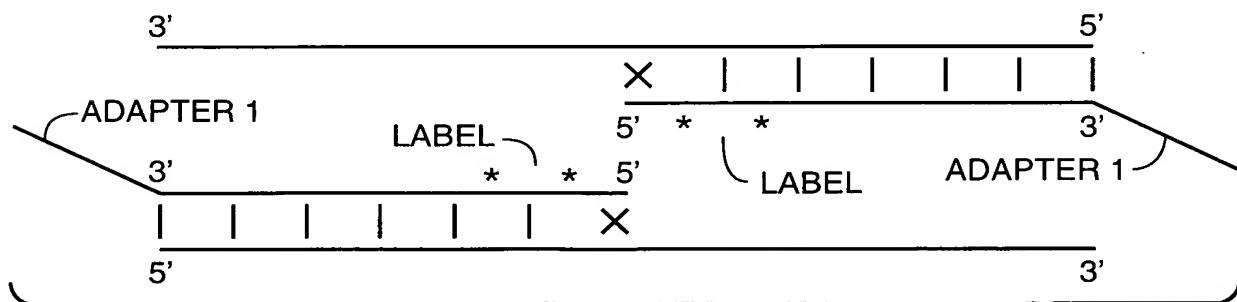
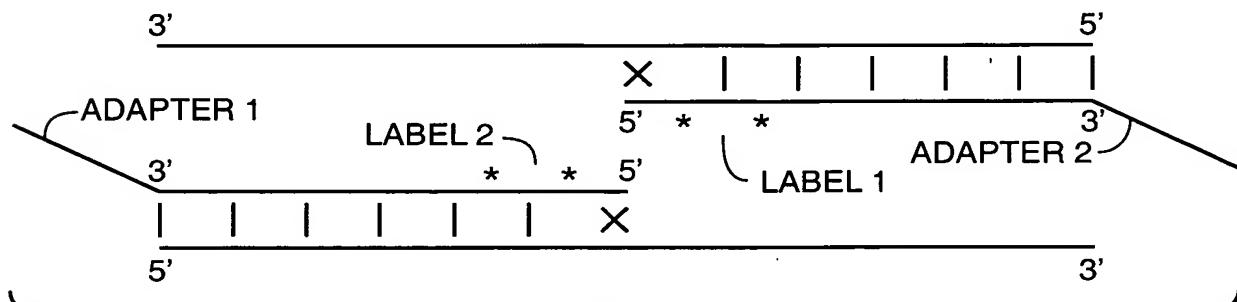
| GENOTYPE | SIGNAL |
|----------|-----------|
| AA | G,B / G,B |
| AB | G,B / R,Y |
| BB | R,Y / R,Y |

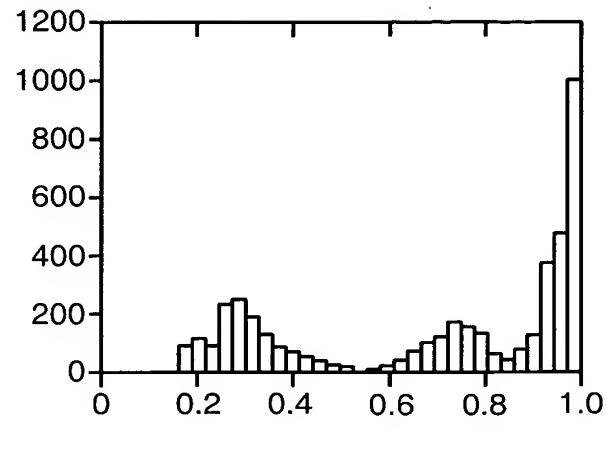
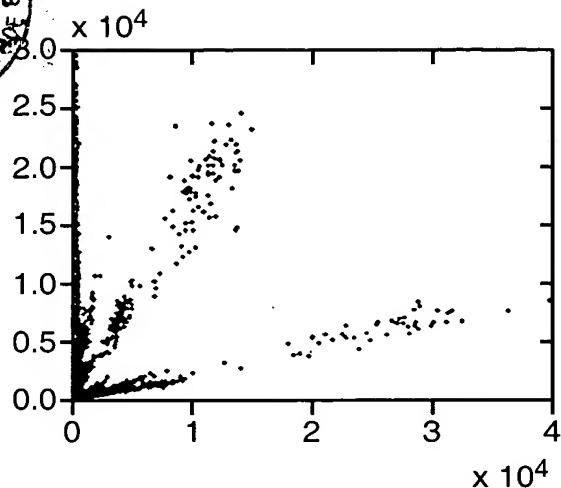
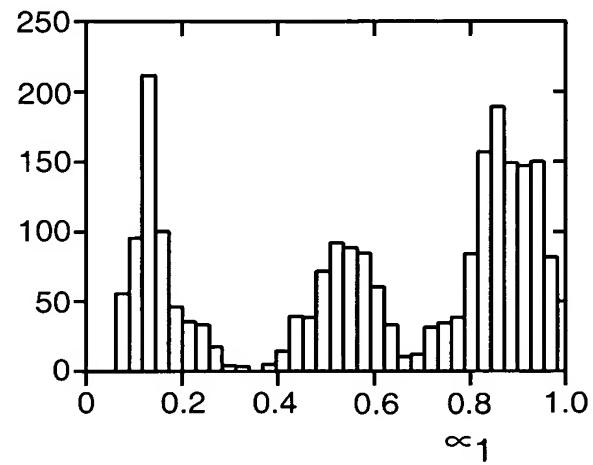
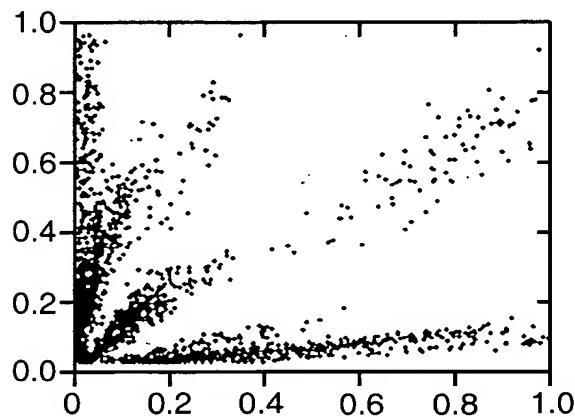
SIGNAL RANGE

x = SINGLE LABEL DISTANCE
y = MULTI-LABEL DISTANCE

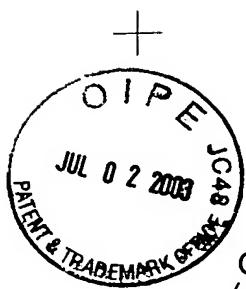
FIG._19

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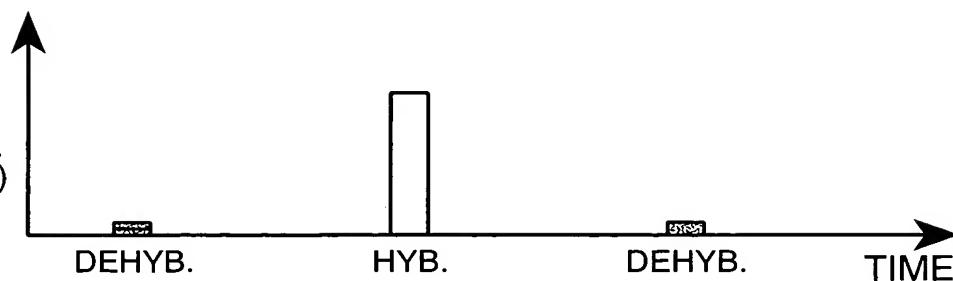
**FIG._20A****FIG._20B****FIG._20C****FIG._20D**

**BEFORE NORMALIZATION****AFTER NORMALIZATION****FIG._21**

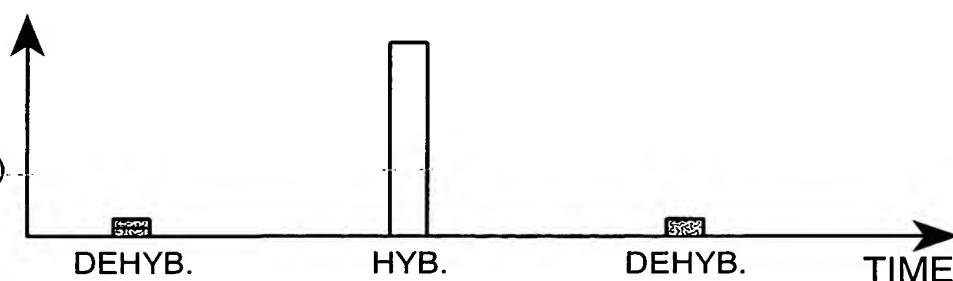
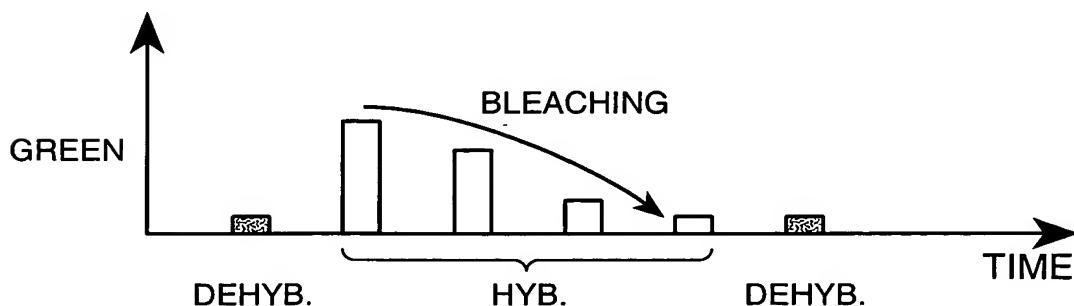
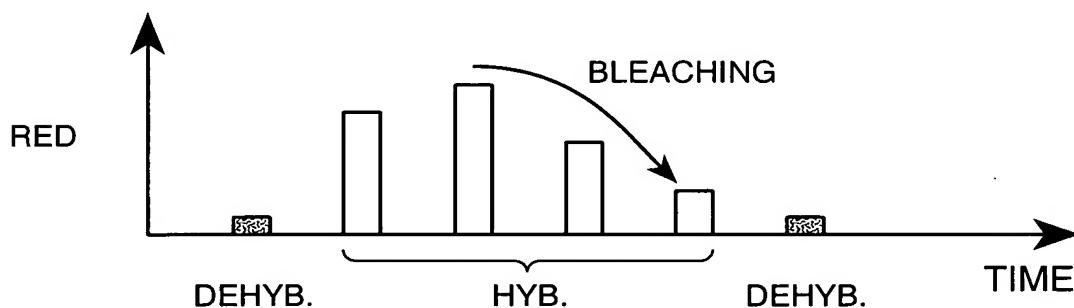
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RED CHANNEL (ALLEL A)



GREEN CHANNEL (ALLEL-B)

**FIG._22A****FIG._22B**

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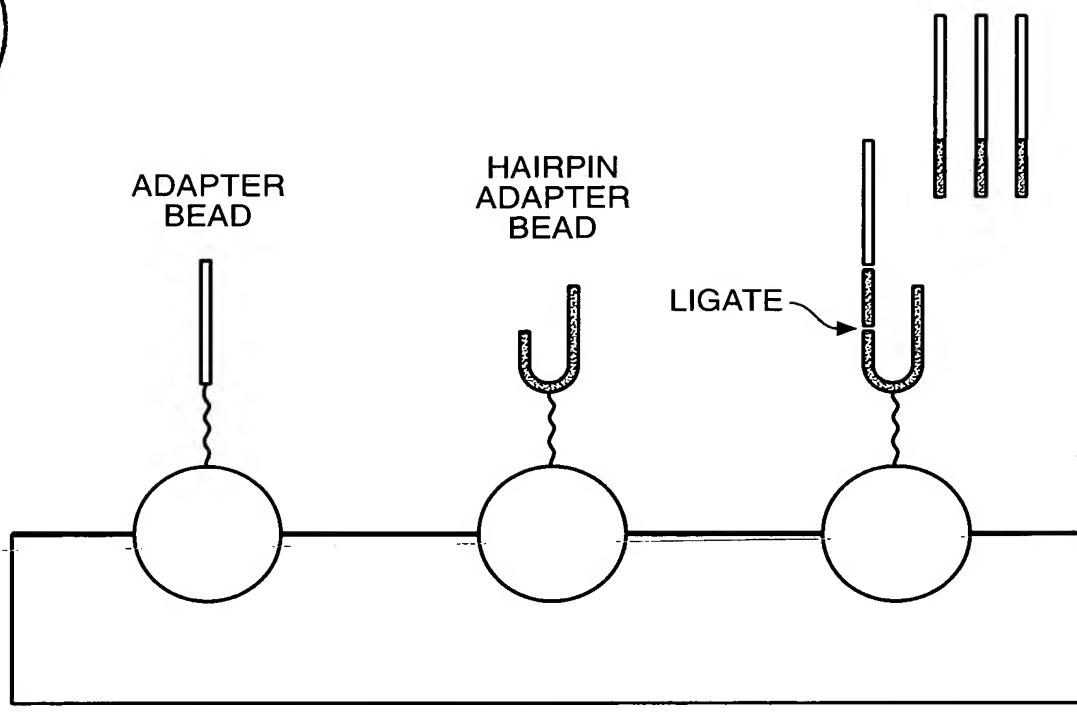
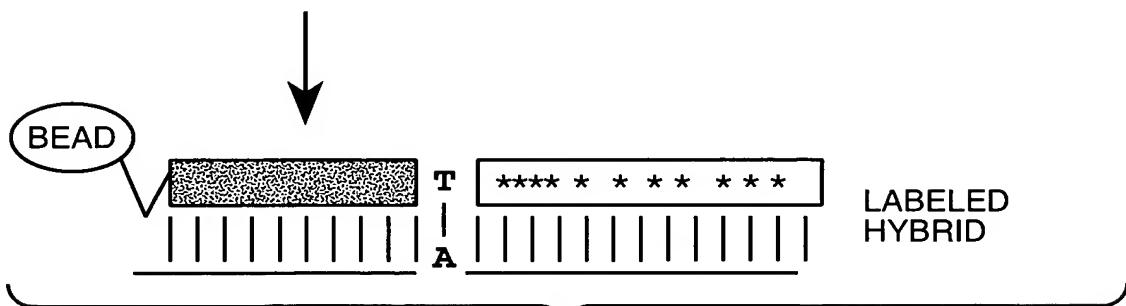
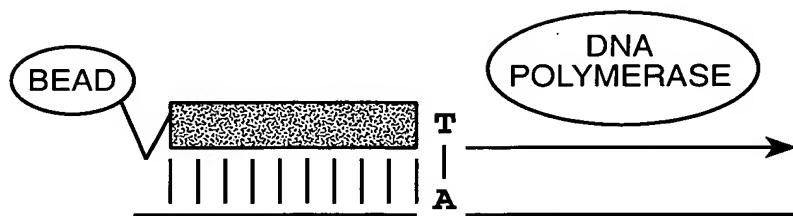
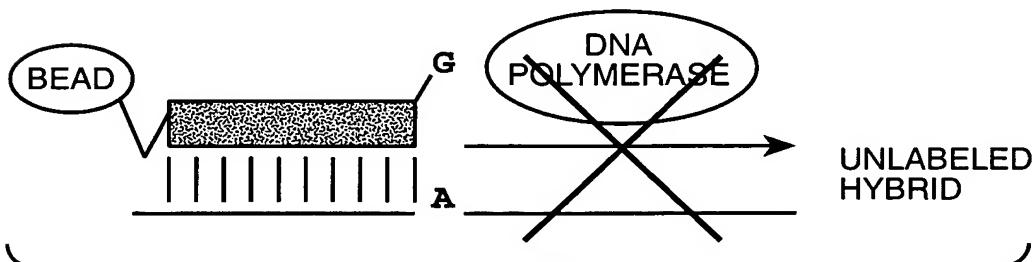
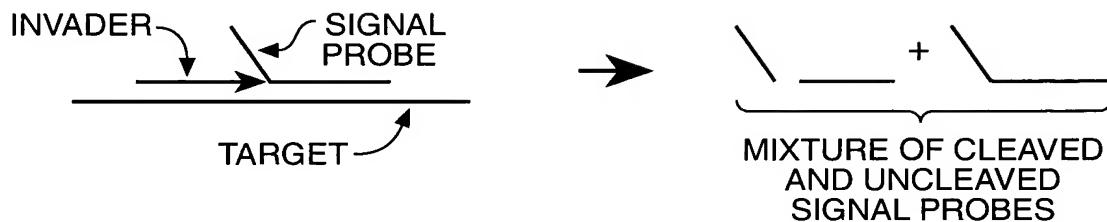
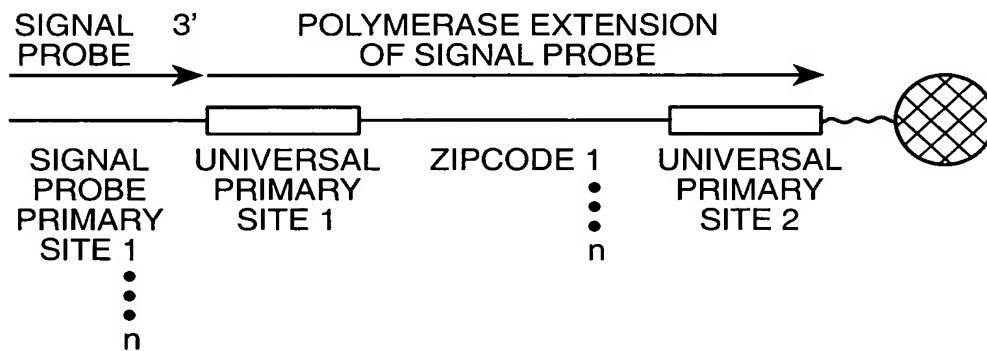


FIG._23

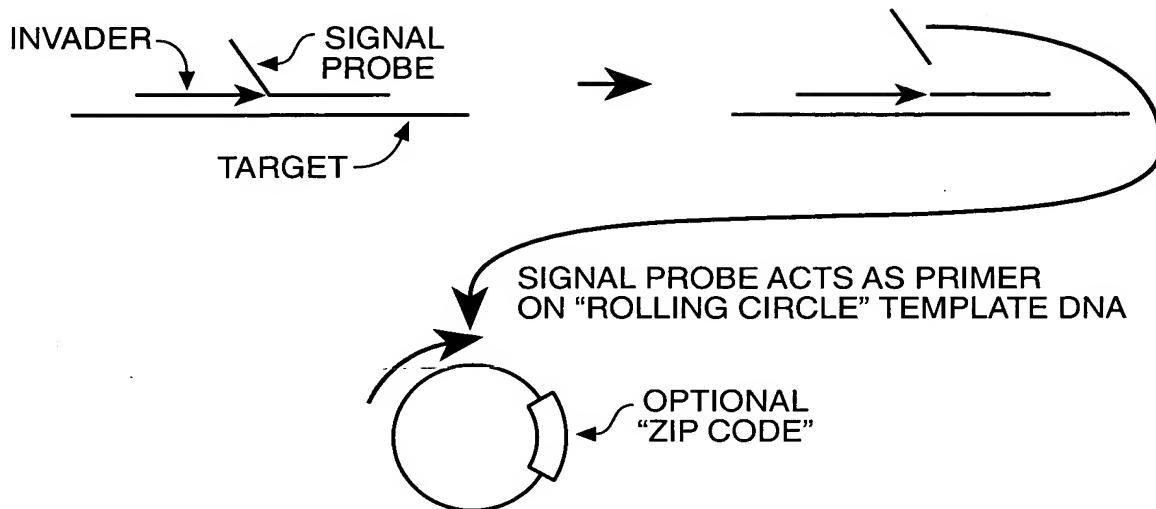
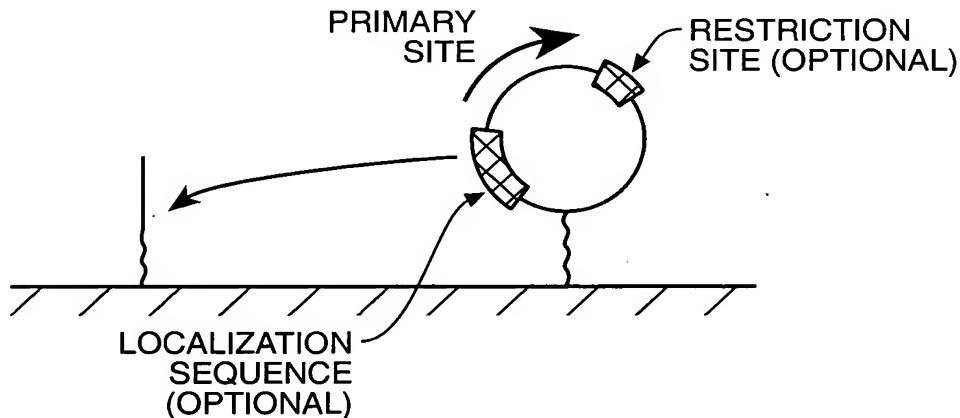
**MATCH TO SNP ALLELE****FIG._24A****MISMATCH TO SNP ALLELE****FIG._24B**

**INVADER - PCR****1) INVADER REACTION****2) REMOVAL OF UNCLEAVED SIGNAL PROBES****3) SIGNAL PROBE PRIMES SYNTHESIS OF AMPLICON TARGET STRAND****4) PCR AMPLIFICATION**

NEWLY SYNTHESIZED TARGET STRANDS ARE DENATURED FROM TEMPLATE AND TRANSFERRED TO PCR REACTION (UNIVERSAL PRIMERS, dNT's, TAQ POLYMERASE) FOR MULTIPLEX PCR. UNIVERSAL PRIMERS ARE LABELLED E.G. WITH BIOTIN.

5) ARRAY HYBRIDIZATION - PCR AMPLICONS CONTAINING ZIPCODES ARE HYBRIDIZED TO ARRAY.

FIG._25

**INVADER - ROLLING CIRCLE****1) INVADER REACTION****SOLID PHASE VERSION:**

ROLLING CIRCLE TEMPLATE IS TETHERED TO SURFACE E.G. TO LOCALIZED "FEATURES" IN ARRAY FORMAT, OR TO BEADS.

ROLLING CIRCLE PRODUCTS CAN BE LOCALIZED E.G. BY HYBRIDIZATION TO ADJACENT PROBES OR RECOVERED IN LIQUID PHASE FOR HYBRIDIZATION TO A DETECTION ARRAY, E.G. BY ENZYMATIC CLEAVAGE.

FIG._26